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WESTWOOD PARK, THE PORCH, WORCESTERSHIRE, ENGLAND.

THE BRICKBVILDER

VOL. 16 NO. 6 DEVOTED·TO·THE·INTERESTS·OF·ARCHITECTVRE·IN MATERIALS·OF·CLAY· JUNE 1907

FIRE INSURANCE COMPANIES.

THE fire insurance report of the state of New York for 1906 presents some very interesting figures, which show how insurance companies and insurance rates have been affected by the remarkable series of disastrous fires which have visited several of our largest cities during the past few years. The margins on underwriting up to the beginning of 1906 have been for many years extremely small, and the San Francisco disaster wiped out all profit, not only for 1907, but for several years to come. Indeed, some companies have lost in this single fire an amount equal to all the profits of the past generation, and a few companies have been entirely ruined by the losses they were called upon to pay. It would be interesting to speculate upon whether or not the country, as a whole, would to-day be better off if there had never been any risks underwritten. It is, undoubtedly, a fact, that the ease with which insurance can be obtained, the actually low rates charged therefor on a fairly well-constructed building, and the reasonable surety that the loss will be adjusted liberally in case of fire, have led to a degree of carelessness in the construction no less than in the maintenance of buildings, which has resulted in a greatly increased fire damage. The profits in the insurance business are not large. The report just mentioned makes it clear by figures that the masterful manner in which the finances of the companies have been handled has made it possible to pay dividends on the capital stock, whereas otherwise the companies would have been short some millions of dollars For instance, in the year 1906, the receipts from interest were $12,233,112, while dividends on capital were only $7,134,785. It is almost axiomatic that the insured really pay all losses in the long run, and nothing but the marvelous prosperity of our country has enabled it to stand the terrific drain of our outrageous fire losses year by year. The companies now doing business in New York state number something like 160. Since 1859, 35 foreign companies have retired from this country, while 151 New York stock companies, 30 mutuals and 230 other state stock companies have been compelled to go out of business, making 446 corporations, all of which have been driven from the field by the crushing conditions which have for the most part beset fire insurance during all of its history in this country. If even half the fire losses and all the other losses entailed upon these 446 corporations could have been expended in improving our structural or our business conditions, the country would be in a state almost Utopian.

Insurance and insurance losses are a dead tax on the community with almost no redeeming feature.

THE ST. LOUIS PUBLIC LIBRARY COMPETITION.

THE conditions in the programme of the St. Louis Library competition represent, to a considerable extent at least, the competition ideas of the group of men who were invited to compete. The competing firms were: Barnett, Haynes & Barnett; Carrère & Hastings; Eames & Young; Cass Gilbert; William B. Ittner; Theodore C. Link; Mauran, Russell & Garden; Palmer & Hornbostel; Albert R. Ross.

The St. Louis Library Board, in which was vested the authority to appoint an architect for the proposed new building, is composed of broad-minded men of affairs whose unanimous desire was to procure for the Public Library the most fitting and serviceable building possible within the available means. The question as to whether a competition or the direct appointment of an architect was the surest means to accomplish this end was hardly open for consideration on account of the public nature of the building. In determining the kind of competition the necessity of attracting the best attainable talent was fully recognized, while circumstances seemed also to require that an opportunity to compete be left open to all St. Louis architects. It appeared to the writer, who acted in an advisory capacity in the conduct of the competition, that a double competition would most satisfactorily meet these conditions. By means of a short, open competition a certain number of men might be selected, and to this group the same number of picked men might be added by direct invitation and a final paid competition be held under an amplified programme. Various delays, however, prevented this plan being followed. Nothing seemed to remain but to make the competition a mixed one, though this form seems to the writer to be the most objectionable of all, on account of the financial handicap placed upon one class of competitors; the paid competitor is in a better position to command assistants, and the unpaid, to have equal chances of success, must go correspondingly deeper into his pocket. If competitions are to be purely tests of ability, it would seem fairer, if there is to be a handicap, to place it in favor of the class of the struggling unknown rather than in favor of the supposedly opulent *arrivé*.

The Library Board selected and invited the list of paid competitors, and proposed conditions of competition were discussed with them at considerable length. Opposition to the mixed form of competition at once became evident, but the reasons given for such opposition were curiously divergent; one, at least, left it to be inferred that unprofessional conduct would be charged under the

competition rules of the A. I. A. for entering mixed or open competitions; another said he could not compete with certain brethren whom he professionolly disliked, hence he must know who were to be his opponents, and he could not thus enter either a mixed or open competition; mixed and open competitions were opposed by another on "general principles," not, however, because his chances of success were thereby lessened; the fourth more frankly said that he was opposed to all except limited competitions, because in others, on account of the large number usually competing, his chances for success were lessened to such an extent that they were not worth while from a business point of view. The form of competition finally decided upon was one limited to nine invited architects who were each paid the sum of one thousand dollars.

There was a general idea among the competitors that the three, or even two, months usually given to making drawings, render competitions unnecessarily expensive. The view held was that every purpose of the competition is served when the general scheme is determined upon and presented at a small scale. To study each of the designs in competition to a finality is waste in every case but that of the winner. A short period of concentrated effort was considered by some to act as a valuable stimulus to the *esprit du corps* of the office, while a long dragging competition results only in the demoralization of the office staff. One month was considered, on the whole, to be a sufficient time to give to the drawings in the present instance.

In view of the short period decided upon, a preliminary programme was issued about ten days before the final one, and hence, before the actual beginning of work on the drawings. This contained general information regarding the competition and the problem to be solved, also a plan of the proposed site and an announcement of the date when the final programme would be placed in the hands of the competitors and the date when the drawings would be due. The purpose of the preliminary programme was to give a certain time for a general consideration of the problem and for making necessary preparations in the office for the work involved.

The jury was composed of three architects, chosen by the ballots of the competitors, and two appointees of the Library Board. The architects chosen were Messrs. Walter Cook, Frank Miles Day and Philip Sawyer. The Board appointed Mr. E. H. Anderson, State Librarian of New York, as an expert librarian, and Mr. John F. Lee the chairman of the Building Committee. The recognition of the place of the librarian on a jury to judge library plans was not only just, and his services exceedingly valuable, but this one instance will undoubtedly do much to bring about a better understanding of the architect's point of view by the professional librarian. Mr. Anderson expressed himself as impressed and educated by the thoroughness of the architects on the jury in their examination into the detailed arrangements of the plans from the standpoint of serviceability for library administration and for library work. The appointment of the chairman of the Building Committee to membership on the jury was also eminently satisfactory.

The final decision of the competition rested with the Board. It was the opinion of the members who were lawyers that a public body vested with the authority to select an architect cannot delegate that power to another body such, for instance, as an architectural jury. In cases like the one under consideration, where the vested body is composed of fair-minded and honorable men, the right of final decision reduces itself practically to a mere technicality; the probability of a disagreement with its jury of experts would certainly seem slight. In this competition the programme provided, in case of a disagreement, that the questions at issue should be referred back to the Jury, and (at the suggestion of one of the competitors) if the Board did not finally agree with the Jury, the author of the design placed first by the Jury should be paid in full for services rendered, the sum of five thousand dollars being agreed upon by a majority of the competitors as sufficient On the question of such compensation there were one or two dissenting votes and the point raised seems worthy of very careful consideration. Granting that there are cases where the final decision must rest with a vested body, should not the moral responsibility of disagreeing with a chosen jury of experts be allowed to exercise its full weight? Particularly in cases where dishonest intentions and influences may be rampant does this possibility for complete discharge of the architect selected by the jury offer an easy channel for the appointment of a predetermined favorite, and thus render competition in such a case nothing but a farce to hide a political game and to stop the mouths of the injured architectural profession and the public generally. Despite the discussion of this point by the invited architects and their anxiety to safeguard the interests of the profession by establishing a proper precedent in the case in hand, where every wish of the profession regarding competitions was most courteously entertained, it will be interesting to record that the report of the Jury was adopted in full, practically without discussion.

The general requirements and the schedule of rooms were made as complete and as explicit as possible, but at the same time, elastic to the fullest degree, in order to give the widest scope to the designer. Following this idea, the only mandatory requirements to the programme were the number, scale (all at 1-16 inch), and presentation of the drawings, and the cubical volume of the design.

The five first designs, as placed by the Jury in their order of merit, were: Cass Gilbert, Wm. B. Ittner, Carrère & Hastings, Albert R. Ross and Eames & Young.

THE INFLUENCE OF PUBLISHED DESIGNS.

THE designs which are worked over the most and which receive the most careful study are not always the most inspiring or of the most value to others than their authors. Indeed, the educational function of the published designs which have appeared in the architectural papers illustrating structures which never saw the light, which sometimes even never hoped to be realized, is a very important one. Sometimes a man's best work is put into ideal sketches and there are minds so constituted that only when they are entirely free from the necessity of considering practical restrictions can they really create. One has only to recall the work of Piranesi in the early Renaissance; or of Otto Rieth, or Blondel

to-day; or, in our own generation, the work of such idealists as Mr. Kirby, to arouse a delightful train of memories of designs which were pure figments of imagination, but which have always exerted a powerful influence upon those who have studied them. Again, in many of the competitions, the designs which were not premiated left a lasting imprint on contemporary art. Carrère & Hastings' design for the Cathedral of St. John the Divine is an instance in point, and we cannot soon forget, also, the delightfully imaginative work with which Mr. Bertram Goodhue has at times embroidered his ideal compositions. And coming yet closer home, we believe that the series of village edifices, the Bank, the Town Hall, the Village Block, etc., which we have published from time to time, have been of real value to many of our readers in stimulating the imagination and awakening a desire for a higher esthetic quality in work of that nature. We cannot forget that we are living in the midst of an exceedingly busy, bustling period, when art is very often a question of catch-as-catch-can, and working drawings simply must be done on time though all the canons of taste be rudely jarred. Consequently it is a delight sometimes, in looking back over the pages of an architectural publication, to come across the ideal compositions of an artist, to see how he has worked over and coaxed up his bit of imagination into a concrete form. Gustave Doré, wildly erratic as he always was, has given us some charming imaginative architecture in a few of his sketches. Of course Alma Tadema is *sui generis*. Few architects can do real architecture as well as he can paint the imaginary and paint it often entirely out of his head. So we encourage the publication of architects' designs which are not to be executed, which are not merely studies, believing that this kind of work shows the real flavor of the creator's taste, and helps to cultivate the imagination and real art of architecture.

WILLIAM LE BARON JENNEY.

WILLIAM LE BARON JENNEY.

WILLIAM LE BARON JENNEY, who died at his home in Los Angeles, Cal., June 15, was born in Fairhaven, Mass., September 25, 1832, and graduated from the Scientific School at Cambridge, Mass., in 1853, and from the École Centrale des Arts et Manufactures at Paris, in 1856. In 1858 he again visited France, and spent a year and a half in study, then returned to enter the Civil War, was appointed captain additional aide-de-camp and assigned to engineer duty at Cairo, Ill., and served in that capacity on the staff of General Grant from Cairo to Corinth, was transferred at General Sherman's request to his command and put in charge of engineer works at Memphis, was chief engineer 15th Army Corps at Vicksburg, and resigned May, 1866, and in 1868 went to Chicago and began his professional career. His first important works were Grace Episcopal Church, the Portland Block and the Mason Building. In 1883 he was commissioned to design the office building for the Home Life Insurance Company of New York, with instructions that the plans above the second story should have the maximum number of small well-lighted offices, which the committee understood would require small piers, smaller than in the usual masonry construction. Mr. Jenney evolved from his engineering knowledge a system of the use of iron columns, upon which each story was supported independently, which solved all difficulties in regard to expansion and contraction, strength, etc., and occupied minimum floor space, the design of construction resembling, in many respects, iron bridges on end, side by side. This was the first occasion when Bessemer steel beams were used, and this building of the Home Life Insurance Company has been considered as the initial and parent building of the steel construction method. In recognition of this fact the Bessemer Steamship Company, in February, 1897, named one of the vessels constructed for them after Mr. Jenney, "in appreciation of his distinguished services in connection with the invention and introduction of lofty skeleton construction for buildings." Mr. Jenney also developed in the Home Life Building, to a hitherto unconceived degree, the equipment of a modern office building, such as rapid elevators, fireproof construction and bracing, well-lighted corridors, lights between rooms and corridors, electric plant, office vaults, thorough system of plumbing, and well-appointed toilets, all of which appointments are now common to all good office buildings, but were first used by Mr. Jenney in that building. His interest and knowledge of work of this type procured him the appointment as architect, with his partner, Mr. Mundie, for the following buildings in Chicago:—The Fair, Siegel-Cooper Building, Association Building, New York Life Building, Trade Building, Fort Dearborn Building, Chicago National Bank and the Union League Club. He was architect for the Horticultural Building at the Chicago Exposition. The last work in which he was actually interested was the Illinois-Vicksburg Memorial, a monument constructed by Illinois on the Vicksburg battlefield. In the spring of 1905 Mr. Jenney retired from active business, and made his permanent residence in Los Angeles. Among the architects and engineers who had early training with Mr. Jenney are the following: D. H. Burnham, William Holabird, Martin Roche, D. E. Ward, A. H. Granger, Howard Shaw, J. M. Ewen, L. E. Ritter.

Suggestions for Architectural Study in Southern France.

BY FREDERICK REED.

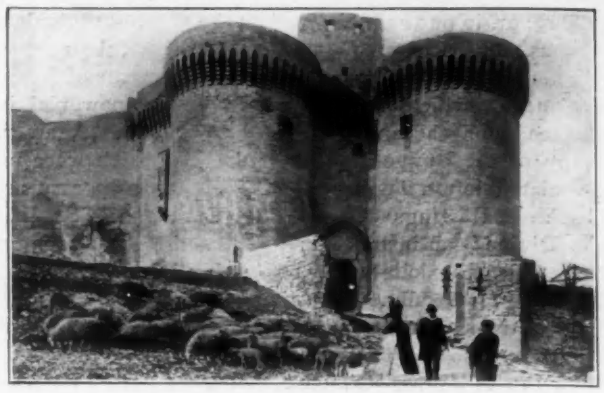
"L'AMOUR de la Patrie" — this has always been the true sentiment of the French peasantry. We find it during the Middle Ages when men of pure instincts possessed ideas of justice far superior to the practices of the time. We see it to-day in the sturdy middle class that till the soil. Three-fourths of the French population are rural. The people own their homes, and therefore constitute the backbone of the nation. These peasants feel a genuine love for their country, and especially for their own province. They are justly proud of their monuments and institutions, and well informed about their architecture. Our admiration increases when we see for ourselves how diligent and industrious the Frenchmen are in spite of their devotion to sentiment. Responsibility matters little, while politeness and hospitality are natural instincts. Their love for peace and tranquility under a strong government has made of them

REMNANT OF A FEUDAL AND ECCLESIASTICAL PAST AT MONT-MAJOR.

the foundation upon which has always rested the salvation of their country.

In the south of France the manners and customs are characteristic of the people, who are wholly unlike their northern countrymen ; and it is this individuality which affords us such rich variety for architectural study. It is, however, impossible to enter into all the peculiarities of each province. This article merely aims to outline the wealth of architecture in the various provinces of southern France and show the reader where and how to investigate with as little trouble and expense as possible. We will consider the departments of Auvergne, Burgundia, Aquitania and Provence.

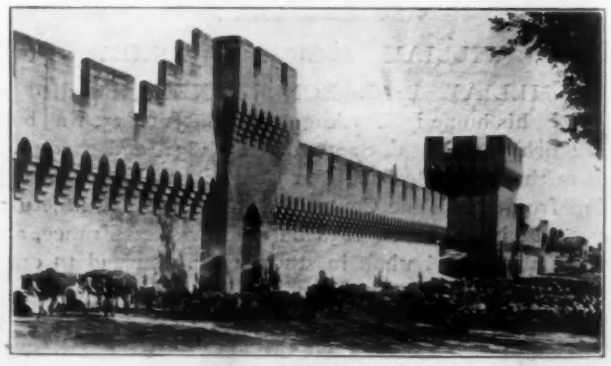
Auvergne is a volcanic region bordering Paris on the south. It is a home for monumental buildings of warm colors toning from reddish and grayish browns to cream. Notre-Dame du Port at Clermont-Ferrand and the cathedrals at Brioude, Issoire, Nevers and LePuy are Romanesque structures worthy of mention in this regard. Noticeable, also, is the large scale of colored mosaic work where huge blocks of freestone take the place of modern tesseræ. There is a strong tendency to make the roofs of tinted tile, and the tone values mentioned



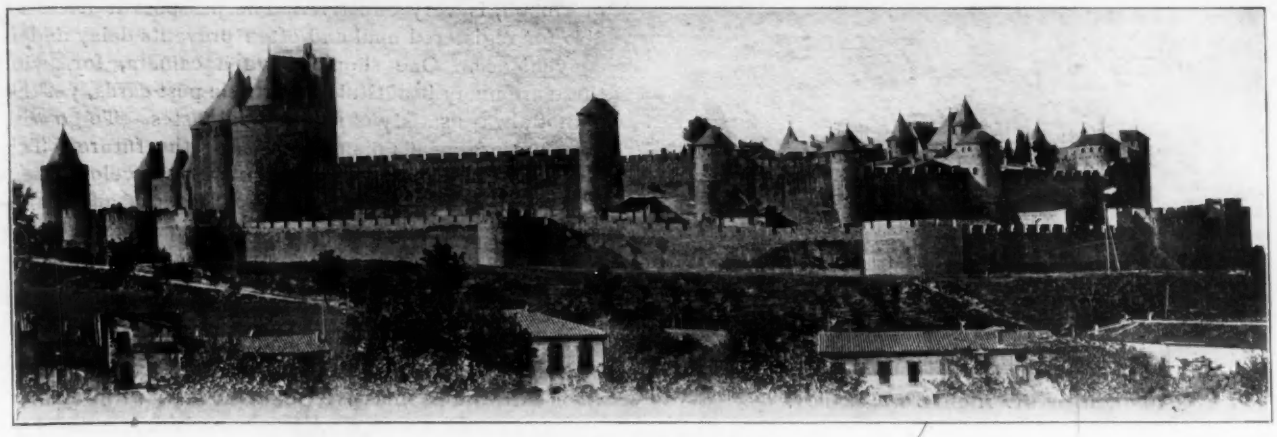
ENTRANCE TO ANCIENT FORT AT AVIGNON.

above are rendered all the more brilliant with the additional use of ceramic glaze. Many towns like Benissons-Dieu and Moulins enrich the external walls of their buildings by using all the colors possible in the brick. At Montferrand are found charming bits of Renaissance, while interesting houses in the same style are scattered throughout the province, like Hôtels Lallement and Cujas at Bourges and Palais de Justice at Nevers. This mountainous region furnishes splendid examples of mediæval fortifications in the ruined castles of Buron, Bourbon l'Archambault, Tournvel, Polignac near LePuy, and countless others. Porte du Croux at Nevers is an interesting relic of the fourteenth century fortifications. An architectural wonder is the church of St. Michel-d'Aiguilhe at LePuy. The façade is a masterpiece of Romanesque architecture, admired all the more when we think of the engineering skill necessary to place this building on the top of a conical rock some two hundred and eighty feet high. La Chaise-Dieu also possesses a unique mountain structure in the celebrated Benedictine abbey, which ranks among the greatest mediæval monasteries, and contains some magnificent Flemish tapestries and beautiful stalls. The cathedral at Moulins has some very interesting chapels around the choir, while the abbey at Souvigny is unsurpassingly beautiful in traceries, tombs and screen work. For a splendid study of domestic Gothic we have the house of Jacques Cœur at Bourges.

To enjoy thoroughly the province of Auvergne one should tour part of it on foot. Bourges, Nevers, Moulins, Clermont, Issoire, Brioude and LePuy are within tramp-



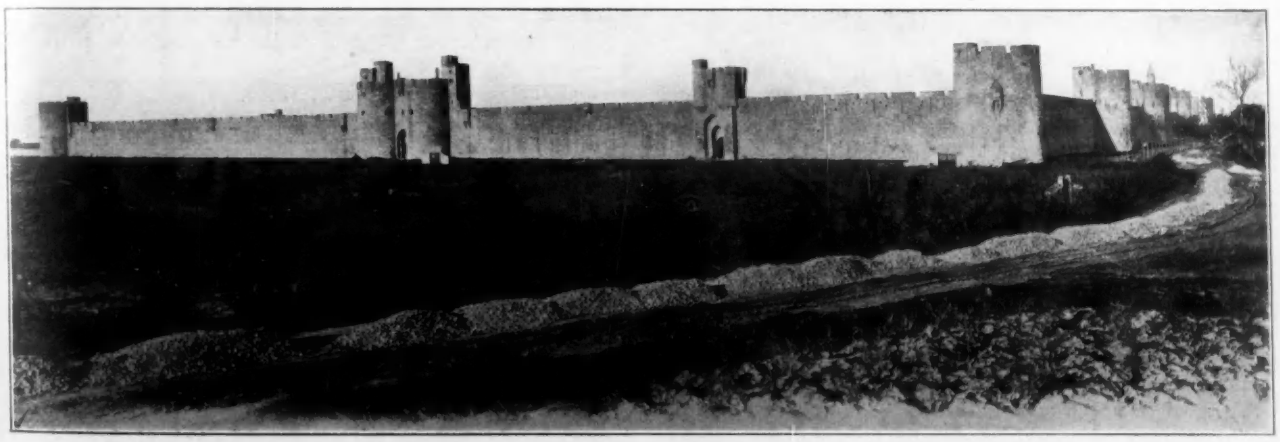
THE RAMPARTS AT AVIGNON.



THE CITÉ OF CARCASSONNE.

ing distance of each other, while many little towns which come between furnish the attractive and picturesque views so seldom seen. The costumes and manners of the people lend much charm to their quaint homes, roofed in red tile, gigantic slabs, or thatch. One can enjoy the provincial inns, for the beds are clean and the cuisine always reliable. It is advisable to carry such toilet articles as soap, comb and brush. Meals and lodging amount to the same here as throughout southern France. A room usually costs from thirty to fifty cents, while the breakfast, which consists of coffee, chocolate, or tea with bread, is twenty cents. The other meals are each from fifty to seventy cents. Hotel bills should be paid early, for if left until train time there may be many extras which you are forced to pay in your haste to depart. Naturally this always spoils what otherwise might prove to be an ideal day. If starting in the early morning, have the account made out the night before. It is generally best to patronize hotels frequented by "Voyageurs de Commerce," or commercial travelers. Unless hampered with baggage, inquire as to location of hotel, for it may be within a few minutes' walk from the station.

The province of Burgundia, which occupies most of the territory lying east of the Rhone, has no distinct type of architecture. Southern France, Normandy and Germany each exerted considerable influence in the architectural development of this province. Many of her more important monuments, like Cluny, have passed away, still we find this department one of the most instructive. In the mountain churches of the Hautes Alpes we find a simple and effective style that well repays the time spent in studying it. The sixth century crypt of St. Laurent at Grenoble is especially notable with its fifteen columns of Parian marble. Near by is St. Bernard, furnishing the purest example of Romanesque sculpture and architecture in this district. One should notice especially the arcaded belfries, similar to the bell towers of Italy. The church at Donat has a square tower of admirable proportions, while St. Martin d'Ainay has two towers which show how decorative these arcaded structures can be. Charlière, the old Benedictine abbey, has a charming eleventh century church porch; St. Lazarre at Avillon has two remarkably rich portals; St. Mammes at Langres illustrates the harmonious use of the circular and the pointed arch. The cathedral at Besançon has two apses, and Embrun has a fine Romanesque tower. The Église de Brou at Bourg is one of the most celebrated Gothic edifices in France. It is rich in tombs, stalls and glass, furnishing us with a wonderful collection of fifteenth and sixteenth century art. The cathedral at Autun is the best example of transitional architecture in France, while Notre-Dame at Dijon is typical of the Burgundian-Gothic style. This province contains many examples of domes-



THE RAMPARTS AT AIGUES MORTES.

CHURCH OF ST. MICHEL AT LE PUY.

tic architecture. Dijon possesses some handsome mansions as well as the most important Neo-classic building in France in the Hotel Vogüé. At Besançon the Hôtel de Ville and Palais de Justice of sixteenth century have pleasing façades with a skillful arrangement of fenestration. Lyons abounds in interesting buildings like the Manécanterie with its inlaid work of the eleventh century, the Hôtel de Ville, and Bourse du Change. At Valence are the Maison des Têtes richly sculptured and the Maison Dupré Latour. Within walking distance of Valence is the old fortress chateau of Crussol. Grenoble has a very graceful design in the Musée, and near by is the Grande Chartreuse, a Carthusian monastery of the eleventh century. The museums of Burgundia merit considerable study. Lyons has a collection of antiquities equalled only by its Mediæval and Renaissance Art.

A ROMAN AMPHITHEATER AT NÎMES.

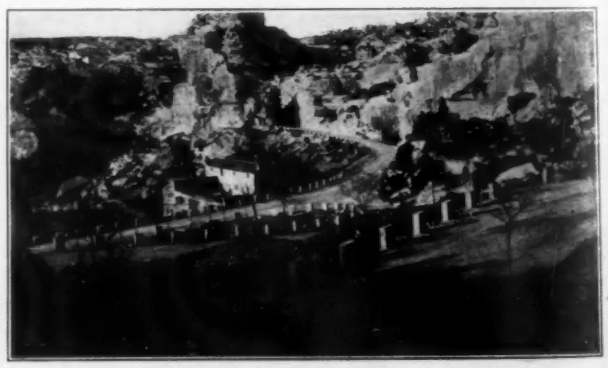
Next in importance is the Musée at Dijon with the magnificent tombs of Philippe le Hardie and Jean sans Peur. Besançon and Valence have very important collections of Roman art, sculpture and painting, while Grenoble has one of the best provincial museums in France.

The season for traveling in Burgundia depends upon the itinerary. The Alpine districts need the summer, while the other parts are better in spring or fall. Churches are open the whole day except from noon until 2 P. M., while the Musées are free to the public on Sundays and often on Thursdays from ten in the morning until four in the afternoon. In order to sketch, photograph or make measured drawings, one should be equipped with a passport and other showy documents. A letter from some university, with the seal and plenty of ribbon, is very effective. The passport is necessary also for registered mail and often prevents delay and inconvenience. One should have a camera, for, while there are many beautiful and artistic post cards, yet they do not always satisfy our individual tastes. To go without a camera means many regrets for the future. Take plenty of films and be very careful who develops them. A developing machine gives more satisfaction and enables one to have perfect freedom as to time and results.

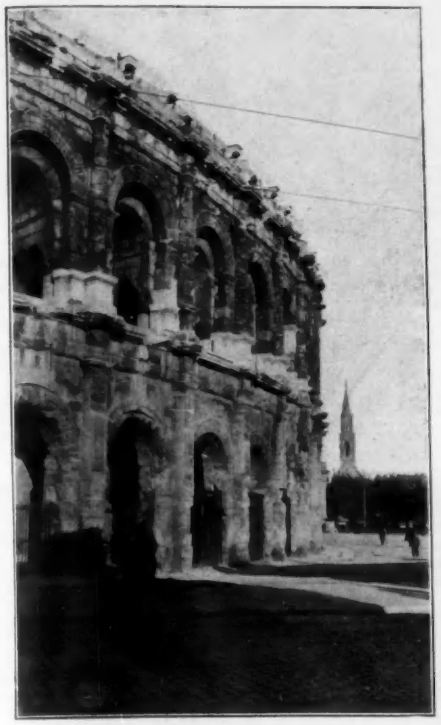
The pride of Aquitania lies in the unique collection of Romanesque churches. The eastern trade via Périgueux established a masonic influence that gave to this province a domical style, which led later to the adoption of the pointed arch. The interiors are mostly in one vast span with walls, massive and pierced with chapels. Poitiers is the home of churches, possessing eight charming edifices, five of which form a unique series of Romanesque types. Notre-Dame-la-Grande, one of the five mentioned above, is the richest and best example, rivaling the Cathedral of Angoulême in the elaboration of detail. Similar to the Cathedral at Angoulême and Notre Dame at Poitiers is St. Front at Périgueux, the best preserved example of the domical style and the "only perfect Greek cross church with cupolas." Other Romanesque-Byzantine churches worthy of mention are at Souillac, Toulouse, Moissac and Cahors.

ROMAN THEATER AT ORANGE.

St. Caprais at Agen furnishes the transition from the barrel vaulting and domed roofs to the Gothic vaulting. St. André at Bordeaux is one of the finest Gothic buildings in southern France. The cathedral at Auch is characteristic of the southern Gothic and possesses the most celebrated Gothic stalls in Europe, while the



ROMAN ROAD LEADING TO LES BAUX.



AMPHITHEATER AT NÎMES.

us an unusual Gothic treatment for the harbor.

Aquitania abounds in famous castles and chateaux. At the castle of Oiron may be seen some splendid enameled plaques and fine marble mausoleums. The chateau at La Rochefoucauld has a magnificent staircase and arcaded galleries, while the castle of Pau and the chateau at Nérac, Cadillac and countless other picturesque castles lend an air of nobility to this province. Besides the castles and chateaux the Hôtels de Ville are monuments of considerable importance, and merit our attention. A few of the most prominent may be found at Angoulême, Poitiers, La Rochelle and St. Antonin.

One should notice especially the practical features of building in the southern part of Aquitania. Having no local stone they used brick, from which are built the large and imposing edifices in and around the region of Toulouse. Among the best examples are the Pont de Bordeaux, one of the most remarkable bridges in the world, the church at Albi, built entirely of brick, S. Sernin, one of the finest Romanesque churches in existence, and the convent of the Jacobins at Toulouse, famous as the most beautiful use of the brick style of mediæval building.

To appreciate fully what influence the Romans exerted over Aquitania we must not neglect the museums, which are found in every town. Curious and interesting capitals are found in the Musées at Toulouse and Bordeaux, showing the remarkable elegance of the carving and of the subjects selected. Limoges has a choice collection of ceramics, mainly of porcelain and faience. At Bayonne the sacristy contains some well-preserved sculptures of the thirteenth century, while Périgueux, Poitiers and Angoulème are filled with beautiful fragments of Roman art.

In Aquitania it is more necessary to know French than in any of the other provinces. In many of the places English is not spoken, which is not the case in other parts more frequented by travelers. And it does not take long to discover that it takes some little knowledge to ask a question intelligently and a great deal more to understand the answer. One should master as much French as possible, for the more he knows the less he will suffer from the extortions of porters, cabmen and clerks. An excellent way to prepare one's self is to use the phonographic course of one of the correspondence schools. Take with you a pocket dictionary for daily use. Enter into conversation with your fellow travelers, that is, if you ride third class, which is strongly recommended. You may have to put up with some inconveniences, but it is very profitable financially, besides being an excellent means of knowing the people and learning the language. Carry an Indicateur des Chemins de Fer, published weekly, and whenever possible purchase circular tickets, which saves from twenty to forty per cent. Tickets are usually purchased before entering the waiting-room. Never fail to have plenty of loose cash on hand, and watch your change, especially what you receive after buying tickets. When stopping at towns for the day only, you can check hand luggage at station for two cents. There are no refreshment rooms except at principal stations, so it is often advisable

MONTE CARLO. ALONG THE RIVIERA.

CATHEDRAL AT NEVERS.

TOMB AT ST. REMY.

in all business transactions as to expense, thereby preventing many an embarrassing situation with cabmen and hotel proprietors.

Under the head of Provence it will be convenient to treat the two departments of Provence and Languedoc together. This division is the oldest, and lies to the south, bordering the Mediterranean. As early as 154 B. C. the Grecian colony at Marseilles invited the assistance of the Romans. As a result all Gaul became a Roman colony, civilization spread throughout Provence, the classic element dominated the Rhone valley, and the glories of the Roman architecture speak to us through their monumental ruins. The one almost perfect Roman temple in the world, and undoubtedly the finest specimen of the pseudo-peripteral, is found in the "Maison Carrée" at Nimes. Its beauty of proportion and elegance of detail rank it among the finest monuments of classic architecture. Nimes furnishes, also, the Temple of Diana, exceptionally beautiful in its details; Tour Magne, an imposing octagonal ruin; and Pont du Gard, forceful in the simplicity of its bold design. At Orange the durability and grandeur of Roman skill have been tested in the Theater and Triumphal Arch. The Theater shows the extent and complications of the arrangement necessary for that time. The Mausolee at St. Remy, with remarkable bas-reliefs of classic victories over barbarian hordes, and the Arc de Triomphe close by are two most important monuments of the ancient glanum of the Romans. Arles, like Nimes, has her amphitheater well preserved, and the ancient cemetery, Les Aliscamps, contains many Roman tombs. The bridge at Chamas has at each end a triumphal arch of considerable charm and interest. And so we might go on indefinitely, for cities like Fréjus, Antibes, Carpentras, Vaison and Cavaillon all possess their arches, tombs, temples, theaters, towers and aqueducts. In short, one cannot find Roman art more skillfully executed or better preserved than in the south of France.

to take food with you. The buffets have satisfactory lunches already prepared in boxes or baskets, which one can purchase for a nominal sum. When traveling by diligences get position as soon as possible as most places are booked ahead. Have a clear understanding

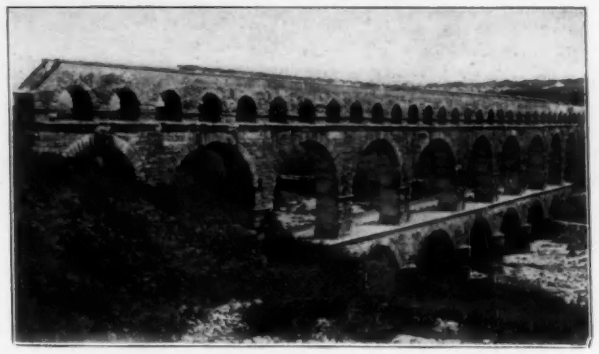
TRIUMPHAL ARCH AT ORANGE.

In Provence and Languedoc we find the most elaborate of all Romanesque work. This part of France suffering least from the barbarian invasions and enriching her art by Roman absorption, developed a Romanesque style that surpassed all others in dignity and refinement. We find all churches have a charming individuality, making this region especially fascinating as well as instructive. The purity of the classic detail and refinement of style have given the Roman features an increased value. The little chapel of St. Croix at Mont Majour is the oldest example and shows the influence of the Byzantine architecture. The style starts with the purity at Avignon, continues through the transitional period from debased Roman to the genuine native form at Arles and beautiful details at Aix, Paredes and Tarascon, and culminates in the unsurpassed decoration of St. Gilles.

Barbarian invasions forced upon the people the feudal system. Church and state proving inadequate, the French peasantry were compelled to seek the protection of the wealthy landowners. Striking proof of the power given to feudal lords are the ruins of Polignac near LePuy, castle of King René at Tarascon, Mont Majour near Arles, and Les Baux. At Narbonne and Béziers are Episcopal palaces strongly fortified. The churches also furnish many examples of battlemented walls, strong towers, and small windows. In the cathedral at Agde, eleventh century,

HOTEL DE VOGUE AT DIJON.

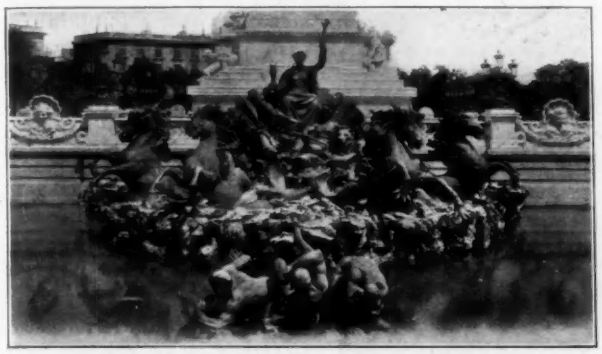
THE ANCIENT ROMAN BURYING GROUND AT ARLES.



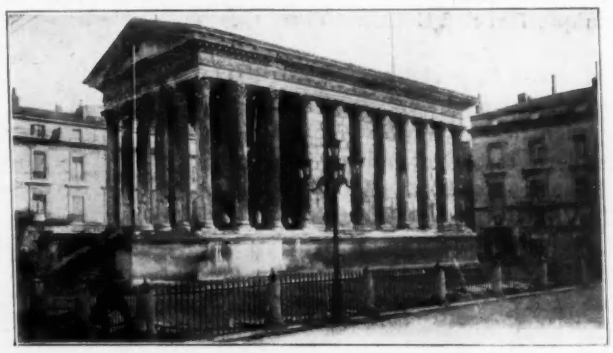
ROMAN AQUEDUCT AT PONT DU GARD.

are the most ancient machicoulis known, presenting an aspect of wonderful strength and utility. The thirteenth century built some magnificent churches strongly fortified with frowning ramparts and tourelles capped with machicoulis. The most important of this century are the cathedrals at Lodève, Montpellier, St. Just of Narbonne, Notre-Dame of Rodez, and St. Nazaire of Béziers. St. Cecile at Albi, thirteenth century, is the greatest fortified church of feudalistic times. Its windows are mere elongated slits. It is impossible to show the steps from the use of wood to the crenelated stone galleries, but a little study in this direction will materially assist in classifying all military architecture as to its time in history.

The Crusades have left to us one of the charms of Provence and Languedoc, — Aigues Mortes, — a uniform picturesqueness of embattled walls and towers of strength seldom seen at such a large scale. Some critics go so far as to claim that the uniformity of its twenty towers and ten gates gives it rank above Carcassonne and Avignon. As for the truth of the last statement we will let the student judge for himself, as Carcassonne is one of the most fascinating places in all Europe. This town or "Cité" existed during the Roman period. Ruled and fortified in turn by Romans, Visigoths, Moors, and Viollet-le-Duc, it has always remained the most formidable fortification in European history. Unlike Aigues Mortes, there are only two entrances to the citadel, while fifty round towers dominate the enceinte of more than sixteen hundred yards. Surely one cannot afford to leave France with that pathetic wail of the broken-hearted Frenchman, "*Je n'ai jamais vu Carcassonne.*"

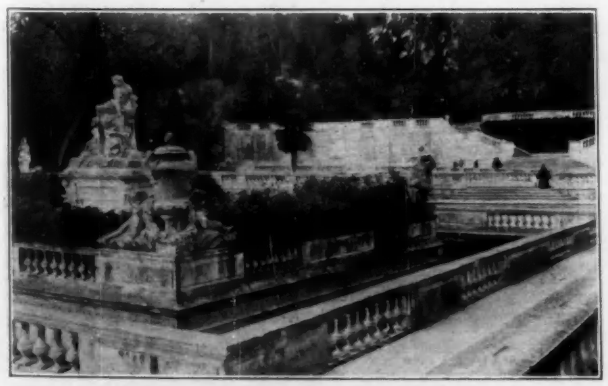


DETAIL OF MONUMENT OF GIRONDONS AT BODREAUX.



THE MAISON CARRÉE AT NÎMES.

The Gothic and Renaissance styles have a few ex-



GARDEN OF THE FOUNTAIN AT NÎMES.

ST. NAGUIRE AT CARCASSONNE.

A STATION AT MONACO.

A TYPICAL TOWN IN PROVINCE OF AUVERGNE.

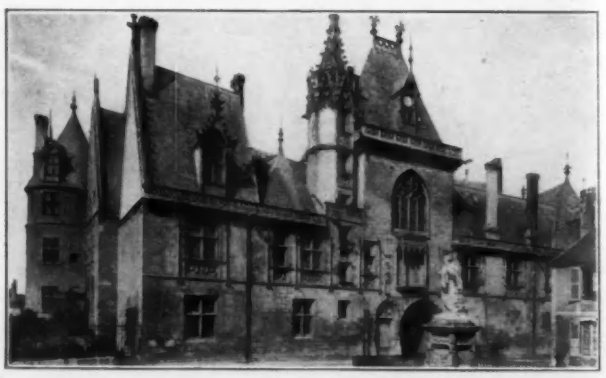
amples of considerable merit in these provinces. The Romanesque churches adopted Gothic features. In St. Nazaire at Carcassonne we have the masterpiece of Gothic delicacy found in southern France. At Narbonne we have a lofty Gothic, and at Albi a unique fortified Gothic. The Jardin de la Fontaine at Nimes is very elaborate and affords a fine promenade. The garden has been planned in modern taste and built over the ancient foundations. Hôtel de Ville at Béziers, Palais de Longchamp and the Bourse at Marseilles, and Hôtel Crillon at Avignon, are the only remaining Renaissance buildings worthy of mention. As for modern skill, there is no part of France that furnishes a better example than the towns along the Riviera. The irregular and hilly contour skirting the Mediterranean has been handled with feats of engineering, remarkable for artistic beauty as well as for power to meet successfully every condition in a sani-

A QUAINT VILLAGE IN AUVERGNE.

tary and practical manner. Huge vine-covered arches and buttresses rise perpendicularly from fifty to one hundred feet, supporting artistic homes and gardens that overlook the sea. Carried above these are other terraces and beyond still others, until the sides of the mountain furnish one beautiful panorama of clean-cut masonry enriched with running vines and charming gardens of exotic trees and plants. At Monte Carlo the Casino, built by Garnier in 1878, furnishes the central feature of the principality of Monaco. One sees here nothing more than a miniature world's fair, possessing every attraction for the pleasure lover of all nations.

The traveler, especially if he be an architectural student, or one at least interested in architecture, should make it a point to visit all cloisters and museums in Provence and Languedoc, for in them he will find some of the best works of ancient and me-

HÔTEL LALLEMONT, AT BOURGES.

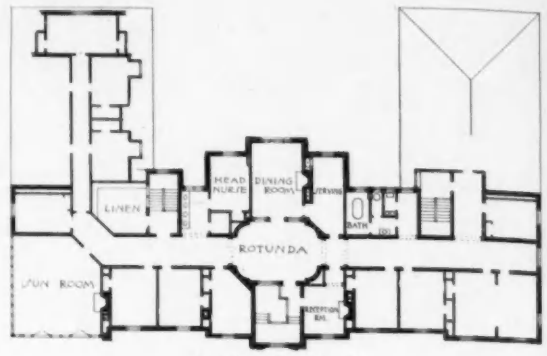


PALACE OF JACQUES CŒUR AT BOURGES.

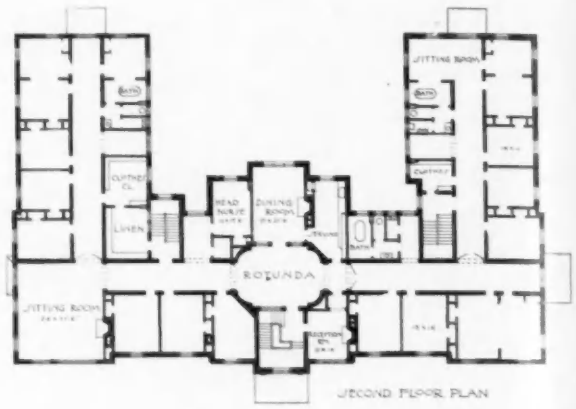
ADMINISTRATION BUILDING, McLEAN ASYLUM, WAVERLEY, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

DORMITORY BUILDING, McLEAN ASYLUM, WAVERLEY MASS.
PHILLIP B. HOWARD, ARCHITECT

SECOND FLOOR PLAN



THIRD FLOOR PLAN



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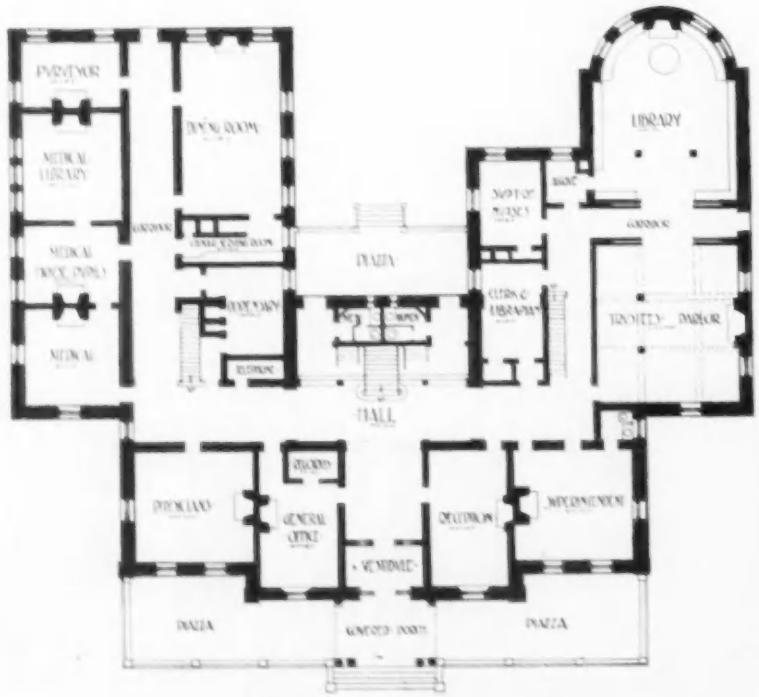
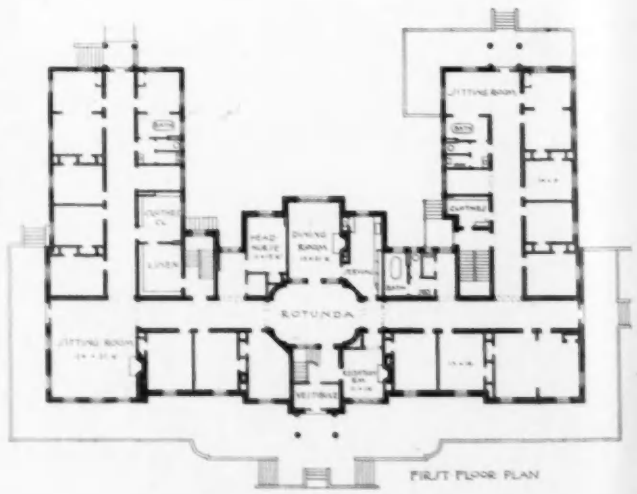


PLANS, ADMINISTRATION BUILDING.

McLEAN ASYLUM, WAVERLEY, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



FIRST FLOOR PLAN

PLANS, DORMITORY BUILDING.

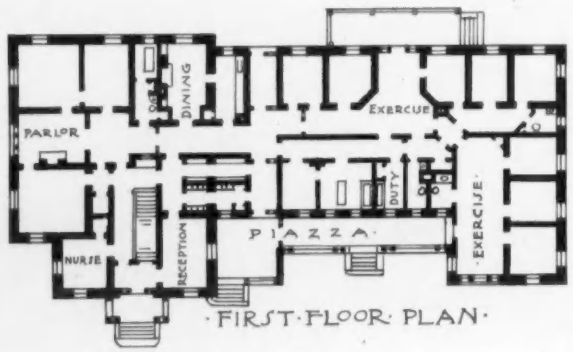
McLEAN ASYLUM, WAVERLEY, MASS.
PHILLIP B. HOWARD, ARCHITECT.

DORMITORY BUILDING (PROCTOR HOUSE), McLEAN ASYLUM, WAVERLEY, MASS.
SHAW & HUNNEWELL, ARCHITECTS.

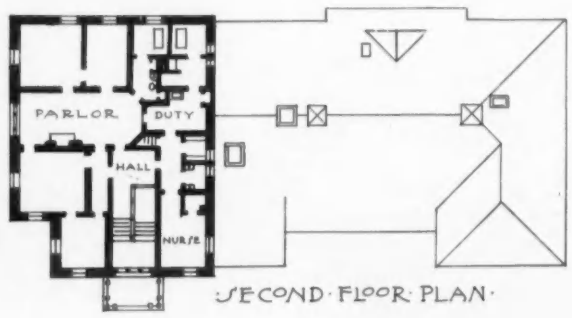
DORMITORY BUILDING (BELKNAP HOUSE), McLEAN ASYLUM,
WAVERLEY, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

FIRST FLOOR PLAN.
(SECOND FLOOR PLAN PRACTICALLY THE SAME.)

DORMITORY BUILDING (BELKNAP HOUSE), McLEAN ASYLUM, WAVERLEY, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



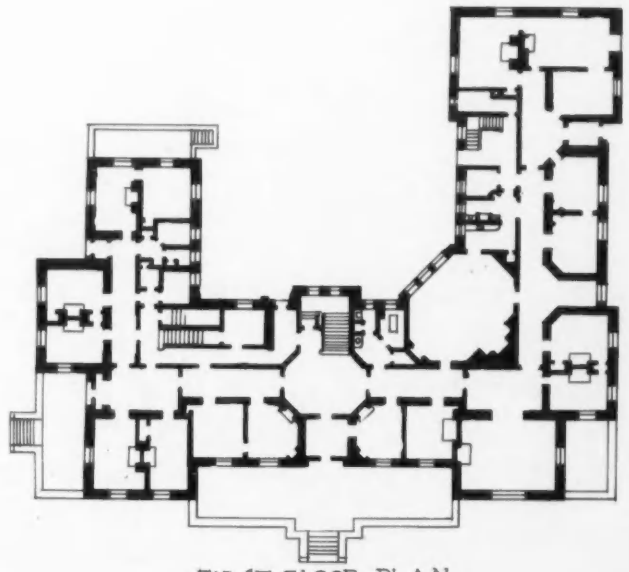
·FIRST·FLOOR·PLAN·



·SECOND·FLOOR·PLAN·

DORMITORY BUILDING (BOWDITCH HOUSE), McLEAN ASYLUM, WAVERLEY MASS.
SHAW & HUNNEWELL, ARCHITECTS.

·SECOND·FLOOR·PLAN·



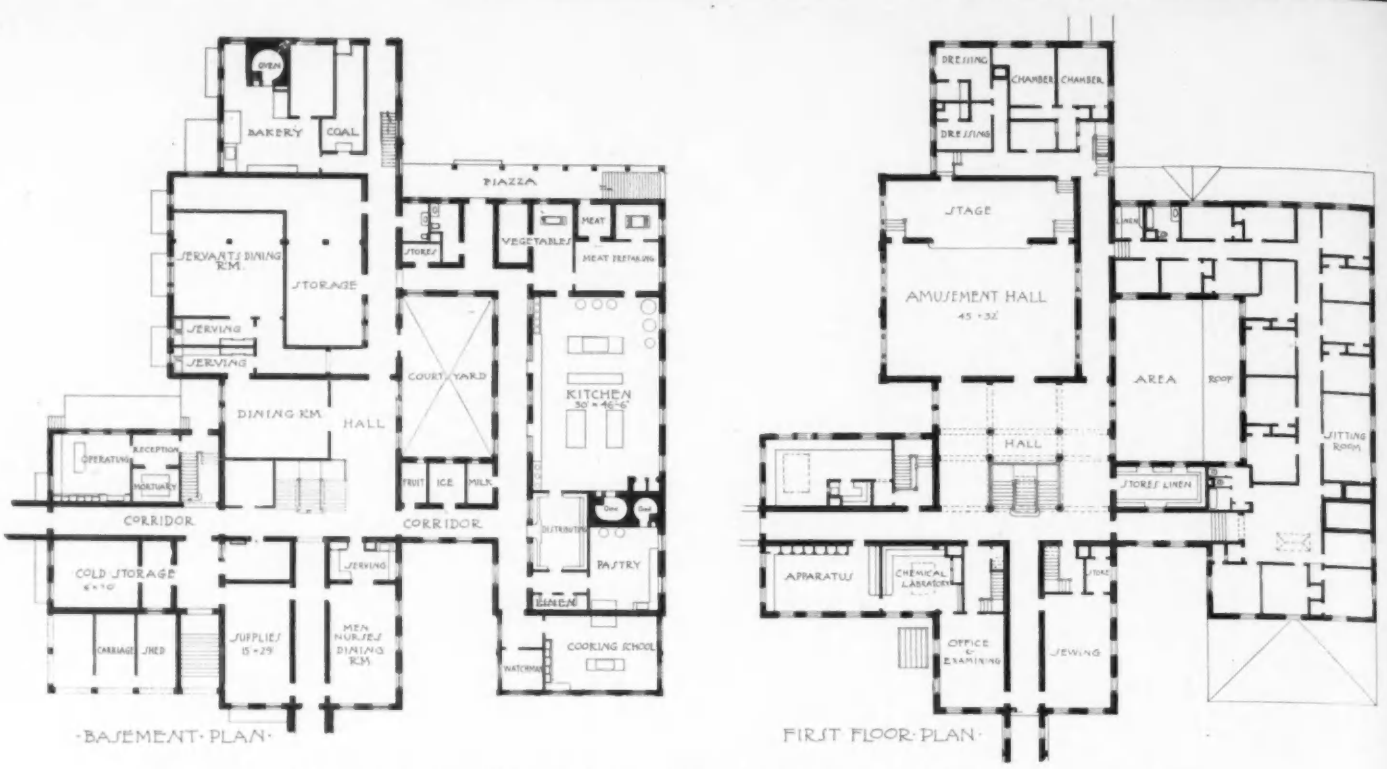
·FIRST·FLOOR·PLAN·

DORMITORY BUILDING (PROCTOR HOUSE),
McLEAN ASYLUM. WAVERLEY, MASS.
SHAW & HUNNEWELL, ARCHITECTS.

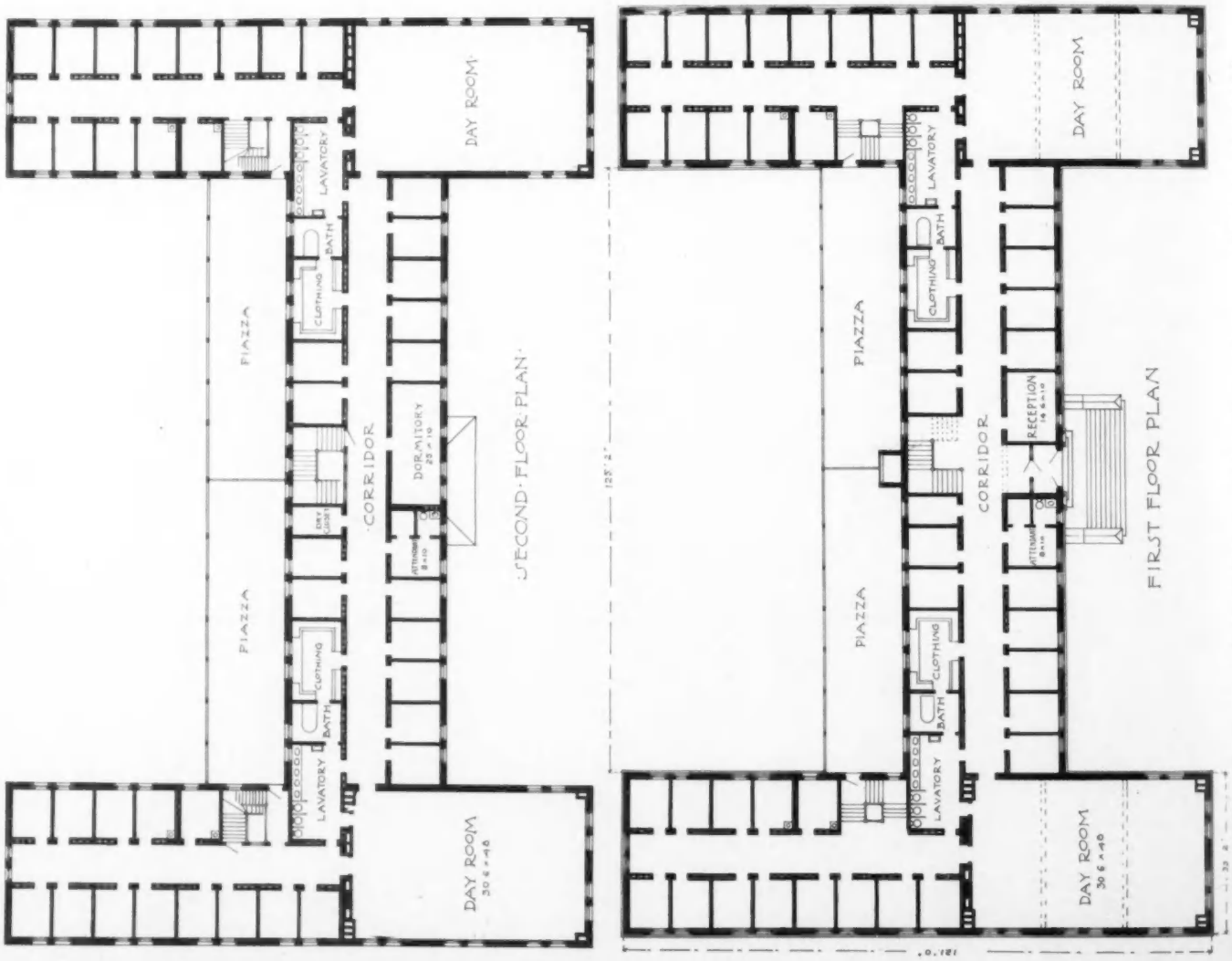
SHAW & HUNNEWELL, ARCHITECTS.

DORMITORY BUILDING (BOWDITCH HOUSE), McLEAN ASYLUM, WAVERLEY, MASS.

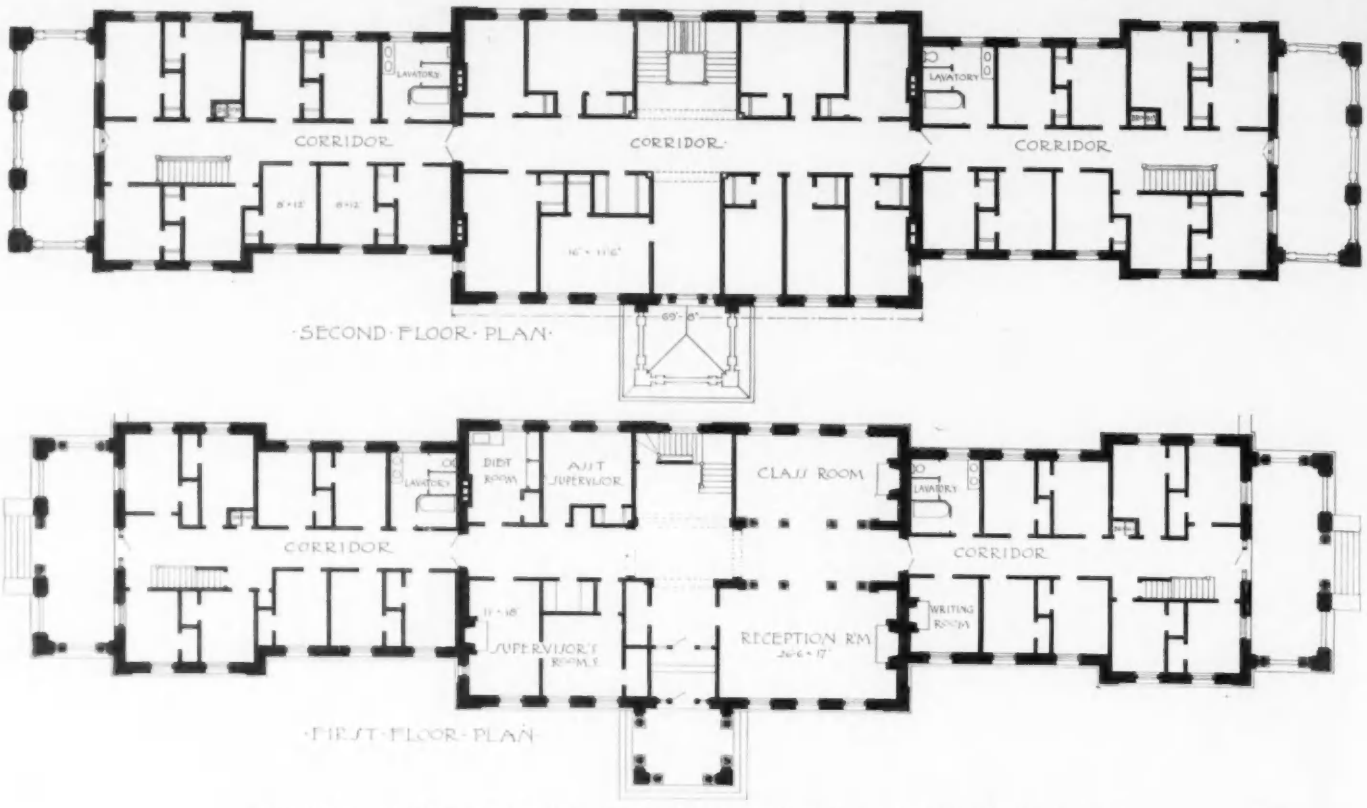
SHAW & HUNNEWELL, ARCHITECTS.



AMUSEMENT HALL AND KITCHEN BUILDING, McLEAN ASYLUM, WAVERLEY, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

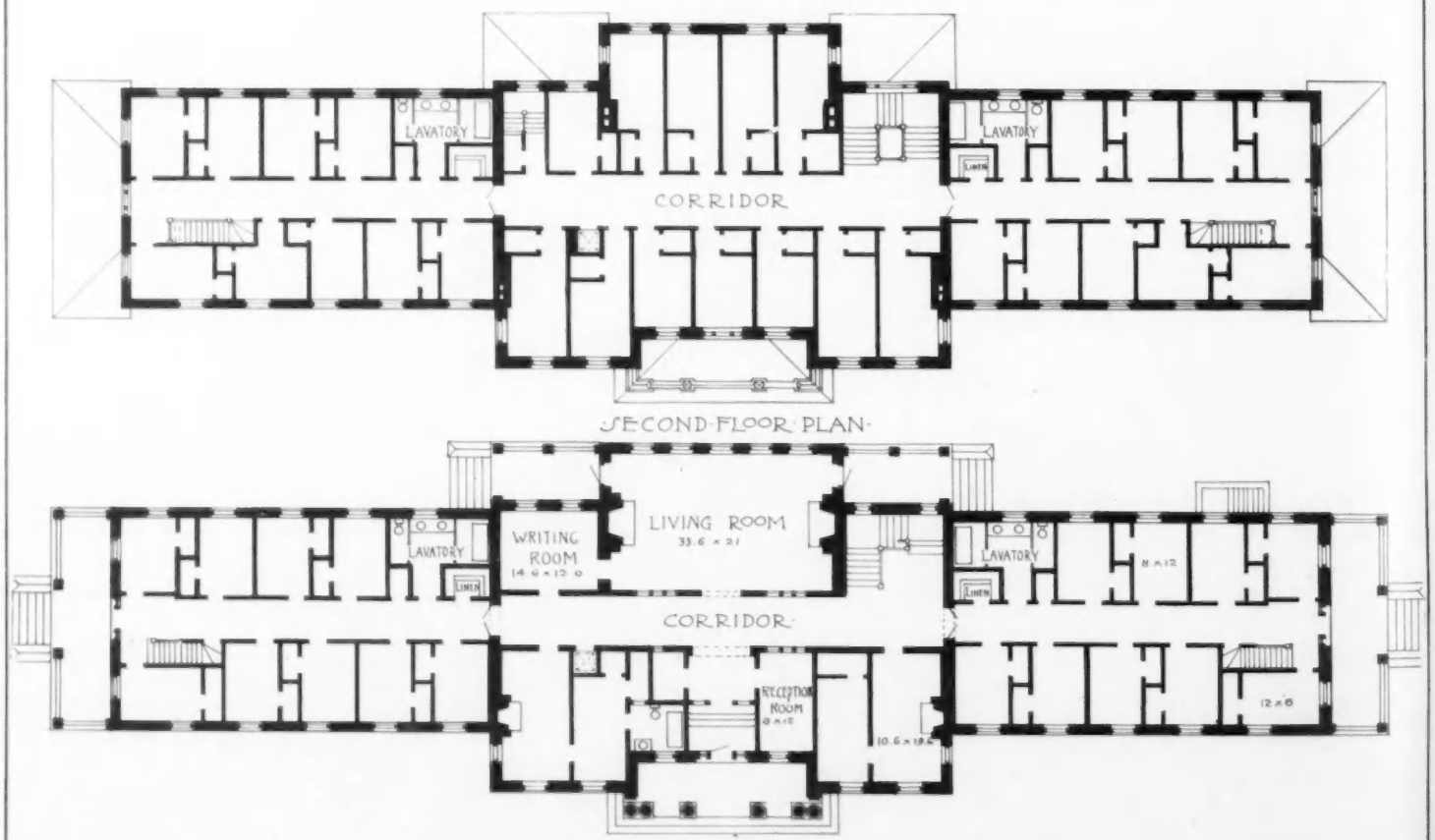


BUILDING FOR DISTURBED MALES, INSANE HOSPITAL, MEDFIELD, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



NURSES' HOME FOR WOMEN, INSANE HOSPITAL, MEDFIELD, MASS.

PARK & KENDALL, ARCHITECTS.



NURSES' HOME FOR MEN, INSANE HOSPITAL, MEDFIELD, MASS.

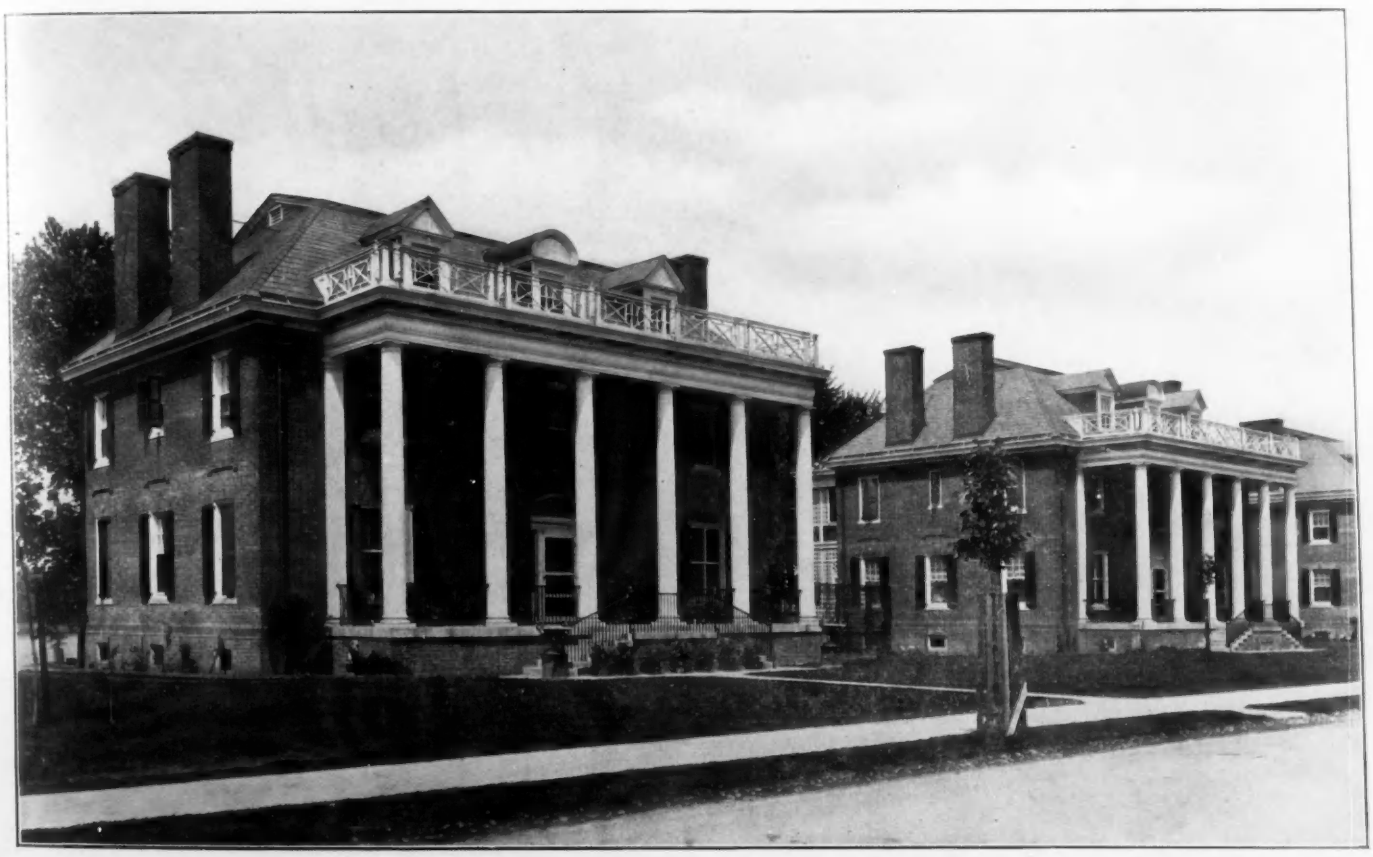
PARK & KENDALL, ARCHITECTS.

MAIN ENTRANCE FEATURE, WAR COLLEGE, WAR COLLEGE AND ENGINEER POST, WASHINGTON D. C.
McKIM, MEAD & WHITE, ARCHITECTS.

WAR COLLEGE, WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.
McKIM, MEAD & WHITE, ARCHITECTS.

THE CLUB HOUSE, WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.

McKim, Mead & White, Architects.



OFFICERS' HOUSES, WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.

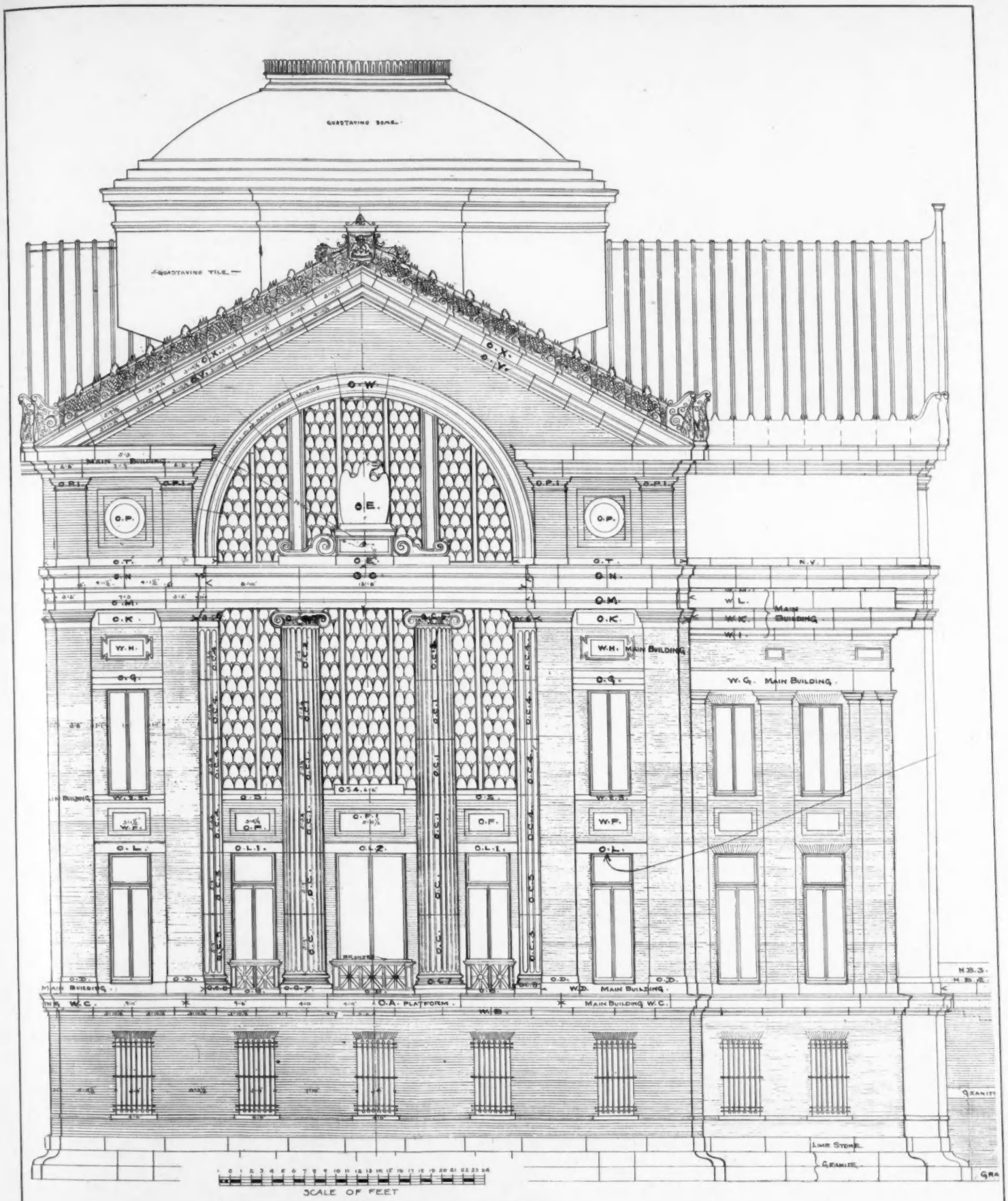
McKim, Mead & White, Architects.

BARRACKS.

WAREHOUSE.

WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.

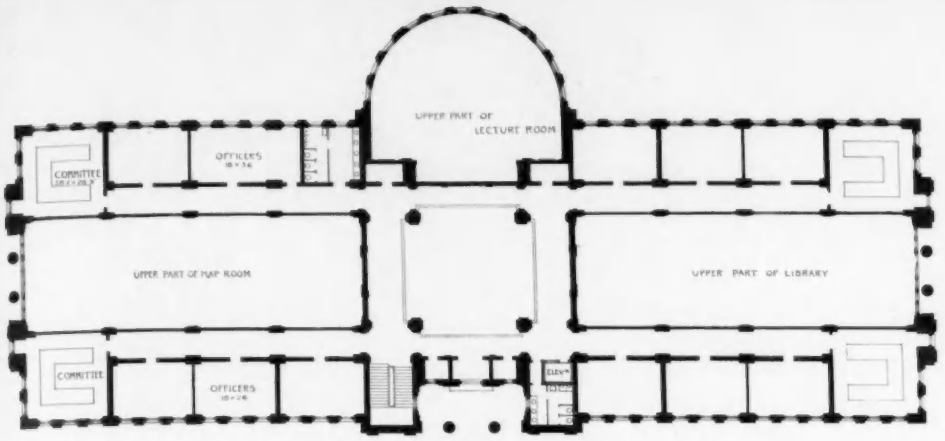
McKIM, MEAD & WHITE, ARCHITECTS.

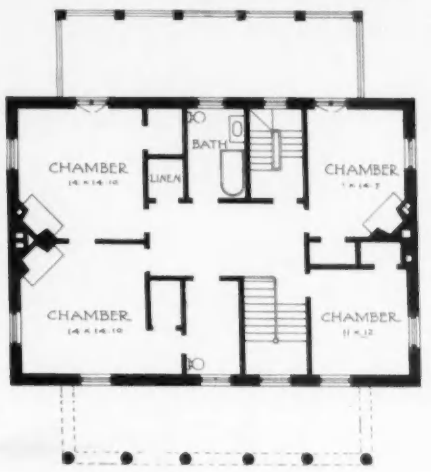


EAST END ELEVATION

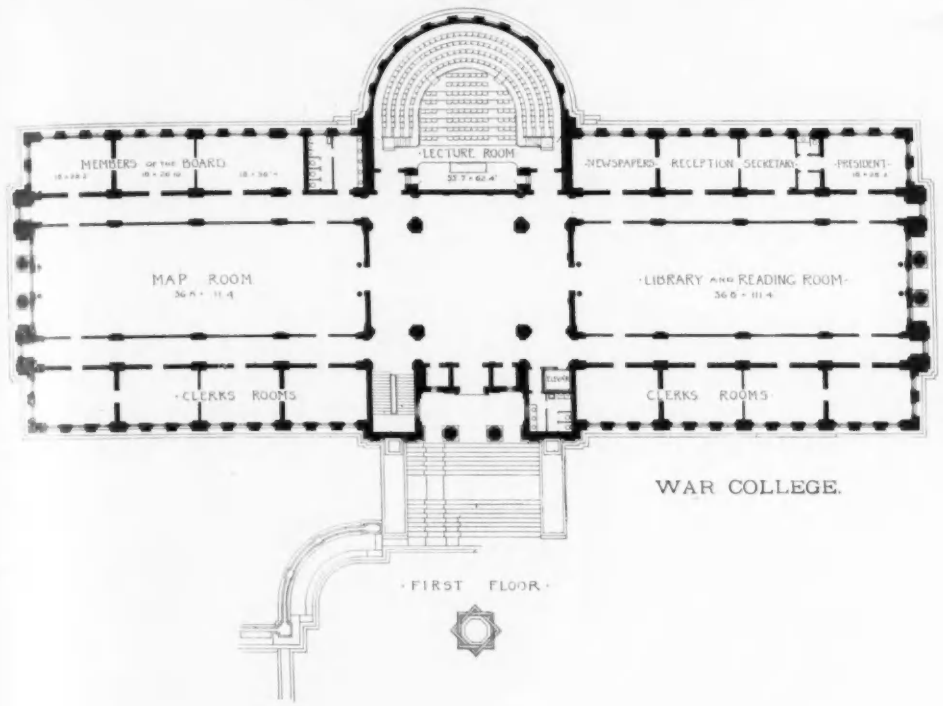
WAR COLLEGE, WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.

McKIM, MEAD & WHITE, ARCHITECTS.

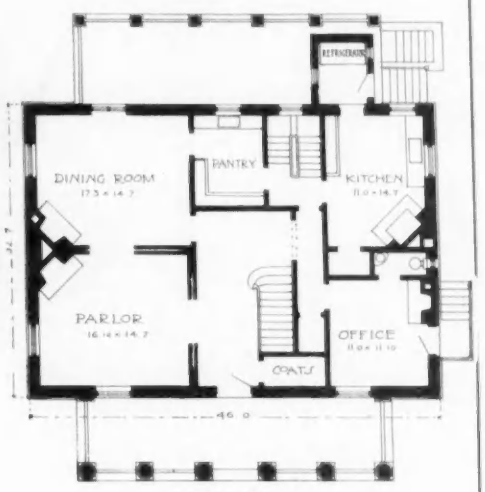




SECOND FLOOR PLAN.

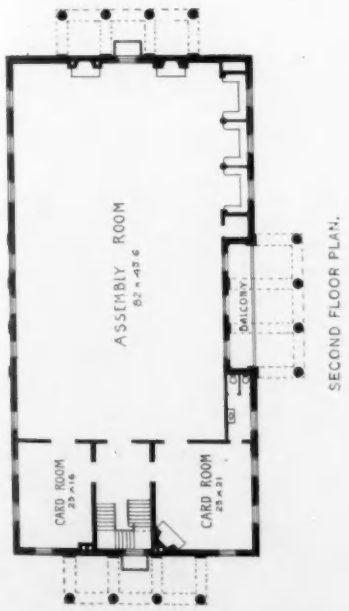


WAR COLLEGE.



FIRST FLOOR PLAN.

OFFICERS' HOUSES.



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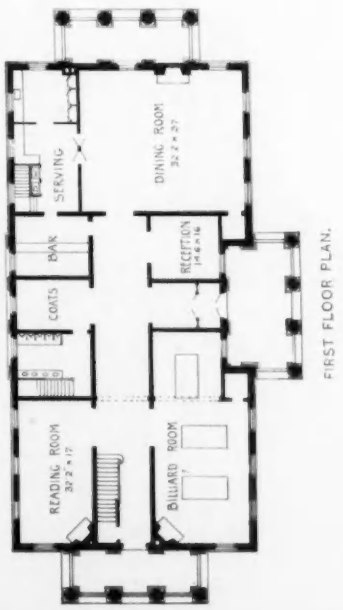


FIRST FLOOR PLAN.

BASEMENT PLAN.

CLUB HOUSE.

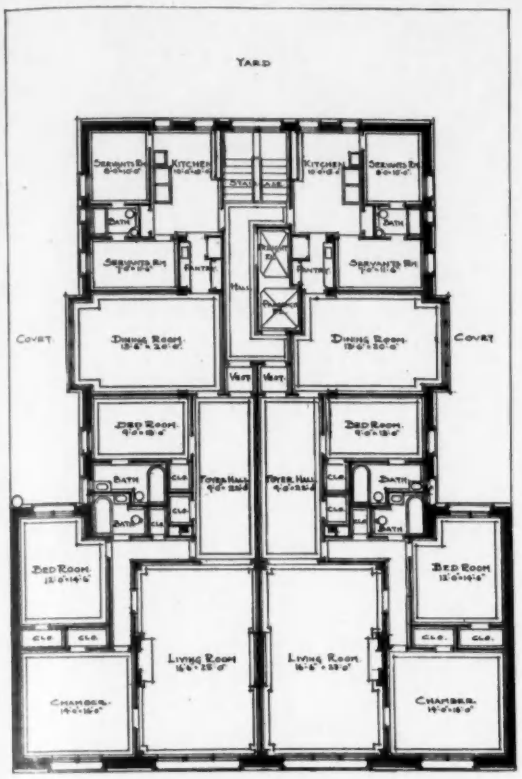
PLANS. WAR COLLEGE GROUP, WAR COLLEGE AND ENGINEER POST, WASHINGTON, D. C.

McKIM, MEAD & WHITE, ARCHITECTS.

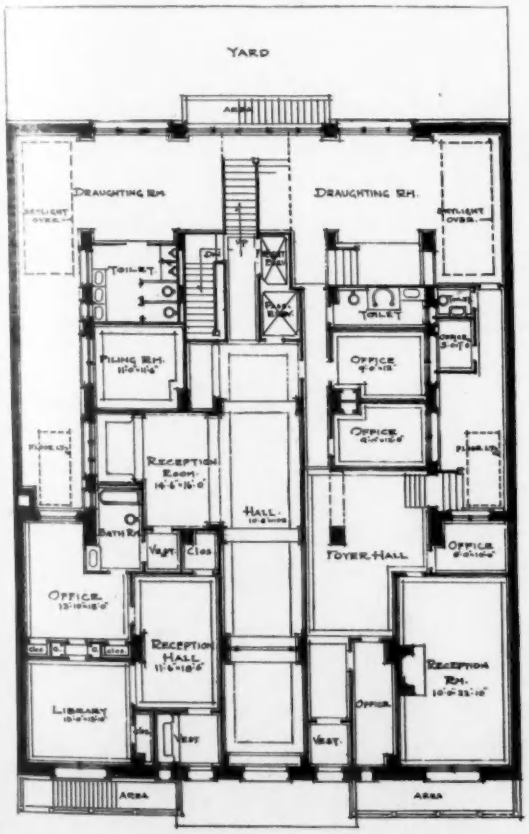
BUILDING FOR DISTURBED MALES, INSANE HOSPITAL, MEDFIELD, MASS.
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

NURSES' HOME FOR WOMEN, INSANE HOSPITAL, MEDFIELD, MASS.
PARK & KENDALL, ARCHITECTS.

NURSES' HOME FOR MEN, INSANE HOSPITAL, MEDFIELD, MASS.
PARK & KENDALL, ARCHITECTS.



TYPICAL FLOOR PLAN.



FIRST FLOOR PLAN.
(THE ARCHITECTS OF THE BUILDING HAVE THEIR OFFICES ON THE FIRST FLOOR).

THE NOTTINGHAM APARTMENTS, EAST 30TH STREET, NEW YORK CITY.
SNELLING & POTTER, ARCHITECTS.

DETAIL OF CATHEDRAL TOWER AT NEVERS.

ters of the twelfth century, while St. Just of Narbonne furnishes the most attractive one of the fourteenth and fifteenth centuries. The museums at Avignon, Arles, Nimes, Aix, Narbonne and Marseilles are rich in sculpture of all ages. As a usual thing, all museums are free on Sundays from noon up to four o'clock in the afternoon. On weekdays it is necessary to pay a slight fee.

To enjoy the art of any locality one should know the people themselves and their general surroundings. It is advisable to take as many rambles as possible. For example: make your headquarters at Arles, a city famed for its street of tombs and visions of fair women. Take an early start, walk through the vineland noticing the perfected state of their irrigating facilities; then, as the morning opens up, visit that beautiful remnant of a feudal and ecclesiastical past, Mont-Major. Another morning take the train to St. Remy, and after viewing those monuments, which are among the most important of the Roman ruins, start for Les Baux. It is some distance, but the walk along those old Roman roads up over the mountains will more than repay the effort. Then enter on foot that city of desolation and decay and you will appreciate the picturesqueness of its external aspect and the wealth of those great feudal proprietors. Another charming walk is along the Riviera. All these and more, too, can be enjoyed by the cyclists A cycle permit should be obtained from the customs agent. Join the "Touring Club de France" and purchase their booklet, "Annuaire," containing complete list of hotels, repairers, etc. They also publish itineraries which are very helpful.

diæval art. In the cloisters we have the most beautiful monuments of the Middle Ages. Here the cloisters need no traceries, and the open arcades, with single or double columns, are charming with their elaborate carving of capitals. At Elne and Arles we have richly sculptured work. Aix and Cavaillon have preserved some delightful cloisters of the twelfth century, while St. Just of Narbonne furnishes the most attractive one of the fourteenth and fifteenth centuries. The museums at Avignon, Arles, Nimes, Aix, Narbonne and Marseilles are rich in sculpture of all ages. As a usual thing, all museums are free on Sundays from noon up to four o'clock in the afternoon. On weekdays it is necessary to pay a slight fee.

PALACE OF LONGCHAMP AT MARSEILLES.

The hotels in Provence all set a good table, and by patronizing one of the more reasonable, you escape the English-speaking people and are forced to learn the native language. If one travels third class and does not live at first-class hotels, he can cover all expenses, including tips, on three dollars a day. It is best to have your money in express checks or use a letter of credit. The Crédit Lyonnais has banks in nearly every city and town throughout France and is very reliable. Take plenty of sketching material and have sufficient clothing when you leave Paris to last until you return again. And above all things, provide mosquito netting.

No country in the world has produced so many thoroughly developed styles of architecture as southern France. It is the richest field open to the modern student. Eastern architecture is seen through the Greek influence in Provence and Aquitania, and also in the plan and construction of the Byzantine churches. Outside of Rome one cannot find such a rich variety of Roman architecture. The Latin architecture of Italy furnishes no better work than the early and later domed churches of southern France. In the eleventh and twelfth centuries France led in the noblest and richest of Romanesque architecture. The twelfth century Gothic emanated from the south of France, while that of the fifteenth century possesses more interest and value than any other in Europe. Moors, Saracens and others affected more or less the provincial styles, and we can almost cover Spanish architecture before we cross the Pyrenees. Because the objects worthy of architectural study are so numerous and so varied in character, and because the finest examples of a diversity of styles are to be found here in a comparatively limited area — an obvious advantage to the average traveler who may wish to economize both time and expense — the writer feels abundantly justified in recom-

DETAIL OF SCREEN IN ST. ETIENNE CATHEDRAL AT BOURGES.

mending most strongly the architecture of southern France.

The following itineraries are given as a help in arranging trips through southern France.

From Spain to Paris via Barcelona. Eighteen days.

Perpignan	1	Day	Avignon	2	Days
Narbonne	½	"	Orange	½	"
Carcassonne	2	"	Nimes	2	"
Aigues Mortes	1	"	LePuy	1	"
St. Gilles	½	"	Clermont Ferrand	1	"
Arles	3	"	Nevers	1	"
Tarascon	½	"	Bourges	1	"
St. Remy	½	"	Paris		
Les Baux	½	"			

From Spain to Paris via Bordeaux. One month.

Bayonne	½	Day	Les Baux	½	Day
Bordeaux	1½	"	Nimes	2	"
Angoulême	½	"	Avignon	2	"
Limoges	½	"	Orange	½	"
Périgueux	1	"	Marseilles	1	"
Agen	½	"	Aix	½	"
Toulouse	1½	"	Grenoble	1½	"
Albi	½	"	Lyon	1½	"
Carcassonne	1½	"	St. Etienne	½	"
Narbonne	½	"	LePuy	1½	"
Béziers	½	"	Clermont Ferrand	1	"
Agde	½	"	Moulins	½	"
Aigues Mortes	½	"	Nevers	1	"
St. Gilles	½	"	Dijon	1	"
Arles	3	"	Auxerre	½	"
Tarascon	½	"	Paris		
St. Remy	½	"			

From Paris to Italy. Fifteen Days.

Dijon	1	Day	Aix	½	Day
Bourges	½	"	Marseilles	1½	"
Lyon	1	"	Toulon	½	"
Grenoble	1	"	Hyères	½	"
Valence	½	"	Fréjus	½	"
Orange	½	"	Nice	½	"
Avignon	1	"	Monaco	1	"
Nimes	1½	"	Genoa		
Arles	3	"			

Paris and return. Twenty-two days.

Paris					
Orléans	1	Day	Arles	4	Days
Tours	1½	"	Marseilles	1	"
Poitiers	1½	"	Avignon	1	"
Limoges	½	"	Orange	½	"
Périgueux	1	"	LePuy	1	"
Bordeaux	2	"	Clermont Ferrand	½	"
Toulouse	1½	"	Nevers	½	"
Carcassonne	1½	"	Bourges	1	"
Nimes	2	"	Paris		

Paris and return. Two months.

Paris					
Orléans	1½	Days	Nimes	2½	Days
Tours and Env.	5	"	Tarascon	1	"
Samur	1	"	Arles and Env.	6½	"
Angiers	2	"	Marseilles	2	"
Nantes	1	"	Aix	1	"
Poitiers	2½	"	Avignon	3	"
Angoulême	1	"	Orange	1	"
Périgueux	1	"	Valence	½	"
Bordeaux	2½	"	Grenoble	3	"
Agen	½	"	Vienne	½	"
Auch	½	"	Lyon	1½	"
Toulouse	2	"	St. Etienne	½	"
Albi	1	"	LePuy	1½	"
Carcassonne	2	"	Clermont Ferrand	1	"
Perpignan	1	"	Bourges	1	"
Narbonne	1	"	Nevers	1	"
Béziers	½	"	Autun	½	"
Agde	½	"	Dijon	1½	"
Lodève	1	"	Avallon	½	"
Montpellier	1	"	Auxerre	½	"
Aigues Mortes	1	"	Paris		

Reference Books.

Bædeker. Handbook on Southern France, Southeastern France and Southwestern France.

Barker. "Wanderings by Southern Waters."

Brossard. "Geographie Pittoresque et Monumentale."

Bumpus. "Holidays Among the Glories of France."

Choisy. "Histoire de l'Architecture."

Cox. "The Crusades."

Cook. "Old Provence."

Daly. "Motifs Historiques D'Architecture."

Dardel. "Monographie Du Palais du Commerce du Lyon."

Desjardins. "Monographie de l'Hôtel de Ville de Lyon."

Duclaux. "The Fields of France."

Fergusson. "Ancient and Mediæval Architecture."

Fletcher. "History of Architecture.

Gibson. "Among French Inns."

Gould. "In Troubadour Land," and "Deserts of Southern France."

Gras. "Les Rouges du Midi."

Guizot. "History of France."

Hale. "Nice and Her Neighbors."

Hallam "The Middle Ages."

Hare. Handbooks on Southeastern France and Southwestern France.

Hunnewell. "Historical Monuments of France."

James. "A Little Tour of France."

Joanne. "Les Pyrenees."

Johnson. "Along French Byways."

Larned. "Churches and Castles of Mediæval France."

Lentherie. "La Grèce et l'Orient en Provence."

Louvier. "La Prefecture du Rhone."

Lynch. "French Life in Town and Country."

MacGibbon. "The Architecture of Provence and the Riviera."

Miltoun. "Cathedrals of Southern France."

Murray. Handbook on France.

Perret. "Le Pays Basque."

Petit. "Architectural Studies in France."

Reguenet. "Petits Edifices Historiques." 2 Vols.

Revoil. "Architecture Romane du Midi de la France." 3 Vols.

Rose. "Cathedrals and Cloisters of South of France."

Rouyer et Darcel. "L'Art Architecture en France."

Scarritt. "Three Men in a Motor Car."

Sauvageat. "Palais, Hôtels et Maisons de France."

Sterne. "Sentimental Journey."

Stevenson. "Inland Voyages" and "Travels with a Donkey."

Sturgis. "Dictionary of Architecture and Building."

Taine. "Traveling in Southern France."

Vincent. "In the Shadow of the Pyrenees."

Viollet-le-Duc. "Entretiens sur l'Architecture," "Dictionnaire raisonne de l'Architecture," and "La Cité de Carcassonne."

Wood. "In the Valley of the Rhone."

Wright. "France Illustrated."

Ceramic Tiles and their Use.

BY C. HOWARD WALKER.

THE use of tile for floors and walls is at present in a stage of initial development in American building. Tentative attempts have been made here and there to produce so-called novel results, and a very considerable amount of work, imitative of old and acknowledged achievements of the past, is apparent, but there is not yet a thorough perception of the possibilities of tiles that lies inherent in their individual character. The factors of imperishability, of permanency and of cleanliness, of depth of tone and of color, are recognized, but the abundant methods of individual expression have been often neglected.

Tiles are ceramic and can run the entire gamut of clay products, glazed or unglazed, from the mere baked earth to the finest of porcelain. They are backgrounds for relief ornament, and for painting, and as such may become great little works of art. But they must be considered as corelative, as coöperative, producing effects by multiplication of units, not by the superlative beauty of any one unit. Naturally an occasional tile of exquisite glaze or iridescent lustre, of exceptional modelling or of fine drawing, can be made the center of a surrounding area, which serves merely to enhance the splendor of this focus, but in most cases the object desired is general effect, not specific isolation, and for success in obtaining general effect there is necessary a very definite knowledge of the means for its production and of the material employed. Generally speaking, unglazed tiles are used either as surfaces of plain color, with perhaps an occasional accent of one or more other colors, or they become a rather coarse mosaic. Such surfaces are negative foils or backgrounds, unaggressive and admirable when service is desired, but otherwise have merely the beauty of agreeable tone and color, and create a contrast for objects associated with them. For this reason unglazed tiles are admirable for floors and for walls, dadoes, etc. When of one color throughout, texture is of great importance, and can be obtained by variety in the shapes of the tiles, and by the use of combinations of geometric forms, squares, triangles, hexagons and octagons, etc.

The existent stock of vitreous and semi-vitreous tile obtainable (apart from special patterns made to order or exceptionally high-priced examples) is of shapes bounded by straight lines, which are usually cut to angles of forty-five and sixty degrees. These are the tiles made by the dust pressed process, and have their lines and surfaces clean cut, straight and true. Of the semi-vitreous tile there are sixty-two different units in each, of seven colors: buff, salmon, light gray, dark gray, red, chocolate and black, making four hundred and thirty-four different units. The shapes are squares of seven full sizes and of their halves on the diagonal. Fourteen different shapes of rectangular oblongs, three octagons and their halves, quarters and eighths; three hexagons and their halves, on both long and short axes; three elongated hexagons and their halves; one pentagon and three equilaterial triangles and their halves.

Of the vitreous tile (or porcelain tile) there are twenty-eight units in eight colors: white, silver gray, celadon, green, blue green, light blue, dark blue and pink, making one hundred and seventy-six different units consisting of five squares and their halves on the diagonal; five rectangular oblongs, one octagon, two hexagons and their halves on both long and short axes; three equilateral triangles and their halves.

It is evident that there is no lack of possibilities of combination of these tiles in geometric straight line patterns, and a great variety of designs has already been used, but in many cases with unsatisfactory effects. Tile surfaces for either walls or floors need to be of one general color or tone, as any combinations in different colors of units as large as the tile units are spotty in effect. The only exceptions are to be found in the Moorish tile patterns, which are of porcelain tile, and which are in most cases star patterns in color, surrounded by ribbon tile of white. But these patterns require strong polychromatic treatment in the other details of the room, otherwise they are too pronounced. Fields of tile, therefore, are usually dependent for their effect upon the texture produced by the pattern as shown by the joints, and the introduction of contrasts should occur only at occasional intervals in some small detail, the intervals between these contrasts being entirely dependent upon the scale of the room. In borders, however, contrasts are desirable. A border to a floor is usually darker than the field, as a dark field with a light border gives the impression that the floor has sunk in the center; while a dark border and light field corrects any such effect of depression. But the contrasts in borders should not be merely spotty differences of value, but should be so planned that either a general tone is maintained or the direction of the border indicated. The texture of the joints in a border is of value in its effect, but such texture should contrast strongly with the texture of the field, borders in one color, with pattern indicated by joints, only being applicable to fields of much simpler pattern. A complicated field requires tone or color contrast in the border. Tile patterns, like stained glass windows, are of a variety of mosaic; *i. e.*, they are mosaic of large units instead of small tesseræ. If the leaded windows of the cathedrals and the tile dadoes of the Moorish palaces be studied, they will be found to have a common factor in their treatment; *i. e.*, that of surrounding centers of interest by small borders of a lighter tone than the focus unit. These small, delicate borders make a pattern in themselves, and often interlock and knot into centers.

The attempt to recreate this principle in modern tile patterns has been overlooked. Plain surfaces of tile depend entirely upon their size for quality of texture, and nothing is more usual than to find the entire character of a wall coarsened and made commonplace by the tile being too large and out of scale with the room and surface on which it is placed. And as apparent scale decreases with the number of sides of a polygon, the danger of coarse texture in a wall surface is greater in the use of square tile than with any other. For the same reason, alternation of color in a geometric pattern is to be avoided, as it at least doubles the scale, and with such large units as tiles does not produce a tone but a series of spots. A spotty wall surface is to be especially avoided with tile, so that if contrasting color is used, it should be either in very small units or in units so isolated that they are overwhelmed by the general background. Unglazed tile can of course have modelled surfaces, which

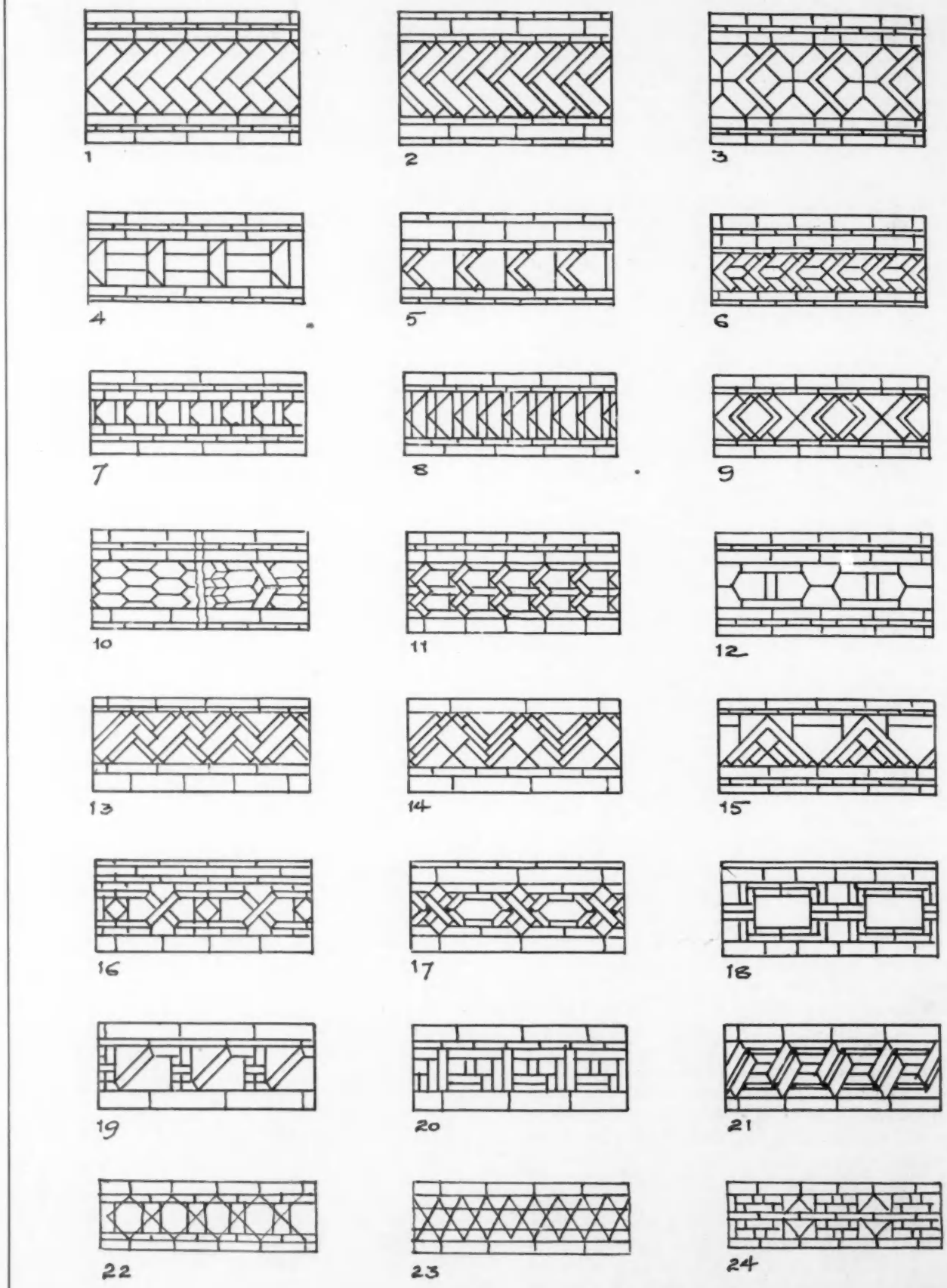


PLATE I. BORDERS.

merely deepen the tone by shadows, and the introduction of such units as occasional foci often adds interest to the whole surface, but even in this case, comparatively inconspicuous as are their modelled tile, it is not well to alternate them with plain tile, on account of coarseness of scale.

Tiles are veneers, not structural factors, and unlike mosaics, should be treated as such. The line of demarcation between glazed tile and structural faience should be very definite. Considering tile as a mosaic of large factors, effects can be obtained by variation in the color and width of the joints between the tile. It has been so long the habit to consider that tiles must fit accurately together, that any breadth of joint is considered poor workmanship, and while this is true, if the variation in joints is accidental, it is by no means the case when the intention is evident, and as the joints form a mesh over the surface, and cover only a small portion of the general area, they admit of all sorts of differences of width, producing a pattern of their own without materially affecting the scale.

In all tile design there should be one strongly dominant background color and tone, and the remaining colors and tones should not differ greatly from the background. Excepting under some circumstances small spots and fine lines only are necessary in semi-vitreous tiles. If white is used as a background to the field, neutral tones and one color only should be used, black occurring only in small spots and fine lines. If grays are used for backgrounds, red or chocolate, or white, should be in small quantities. Salmon is only agreeable when used with white; buff should not be used in large proportions with red, as the result is an effect of orange. Buff and white are, however, successful. In vitreous tiles the colors are more intense, and consequently more difficult, to arrange. Plain surfaces in all the colors excepting pink are attractive, both in walls and floors. Pink is a tint, a diluted rose red, and is mawkish, excepting in fine lines and small spots in large surfaces of white and silver gray. All intense colors combine well with white. In tile work, more than in other decorative work, it is advisable to adopt a definite scheme of color, either neutral or of cool tones or of warm tones, and avoid an introduction of complementary colors, as the subdivisions are large, prevent the complementaries from neutralizing each other, and the effect of their use is that of conflict and opposition and not of harmony. In borders, stronger contrasts may be used than in fields, but the contrasting colors should be separated by borders of lighter tone value than either of the colors. Parallel line borders of narrow tiles, each color separated from the next by a fine white or light line, are very effective. Wall patterns should be either all-over patterns with plain base and a top border, or divided into vertical panels by borders. Horizontal panels and zones are seldom successful in tiles. The same or similar fields and borders may be used upon walls as upon floors, either in absolute harmony with, or in contrast to the floor. But patterns based on circles are seldom adapted to wall surfaces, as they disturb the vertical appearance of the wall when seen in perspective. It is manifest, also, that the designs upon a floor can be much larger in scale of plan than upon the walls, for the wall surface of tile is a veneer which would seem unstable if made of too large pieces, while the floor surface, resting upon support, never seems unstable.

In the accompanying illustrations, Plates 1 and 2 are designs for borders and fields. While these designs are by no means original in their general character, being simple geometric repeats, they are made from the tiles already existent in stock, and they have one intention in common, that is, the patterns are decorative from the lines of the joints even if no contrasts occur in the color or tone of the tiles. Also there is more variety in the widths of the long tile and in the scale of adjacent pieces than is usually to be found in tile patterns. Of the borders, Nos. 1 to 9 are variants of the herring-bone pattern, 10 to 12 of the elongated hexagon, 13 to 15 of the zigzag, 16 to 24 of chain patterns, etc. Each and all of these can be increased in apparent scale by the use of two tones and colors, but the introduction of three tones or colors would in most cases confuse the pattern. It is not unusual to find borders which are excessive in width and over-detailed in comparison to the fields they enclose. Any border is merely a separation, a frame, and requires strength rather than elaboration. In all tile work special care is necessary to avoid too large a scale of unit and of repeat in the pattern.

Plate No. 2 contains fields or all-over patterns which may be used on walls or floors. Nos. 1 to 3, 6, 17, 18, 21 and 23 produce striped fields with a strong effect of direction. Nos. 10 and 17, this latter based on pentagons, are complicated and somewhat confused in character, but would serve in small areas as foils for simpler adjacent patterns. None of these fields have as various contrasts as the borders, as variation in fields is not a virtue. No more complicated patterns in fields need ever be used, and there are an infinite number of simpler patterns which may be adopted. Contrasts of tone or color in fields should be either in small isolated spots at considerable distance apart or very equally distributed over the field in units of similar areas. For example, Nos. 2 and 9 are better fitted for contrasts of color or tone than are the others.

Tile work, apart from the shape and patterns of the tile, is very apt to be faulty in design from too violent contrasts between the borders and the fields. Contrasts which would not be considered between stiles and rails and panels in woodwork are constantly recurring in tiled walls. And borders strong enough to hold sheets of marble are placed around fields which are already incorporated with the wall and are capable of sustaining themselves. Broad borders with strong contrasts appear to be too heavy. Very narrow borders appear to be too thin. The natural conclusion seems to be that it is unwise to use violent contrasts of any kind.

Tiles may be used successfully upon arched or vaulted ceilings but upon flat ceilings give an effect of insecurity. The ceiling units and patterns should be even smaller than those upon the walls. The sequence of scale in tile design being as follows: Largest units and patterns upon floors, smallest upon ceilings, the walls to have smaller patterns than floors and larger than ceilings.

On vaulted surfaces the borders will naturally follow the intersecting lines of the vaults, but will be much narrower than floor or wall borders. Heavy centers in ceiling panels are to be avoided in tile, though such centers may be used around pendent light fixtures, etc. Decoration of angles and panels is more applicable to ceiling panels than to wall or floor panels.

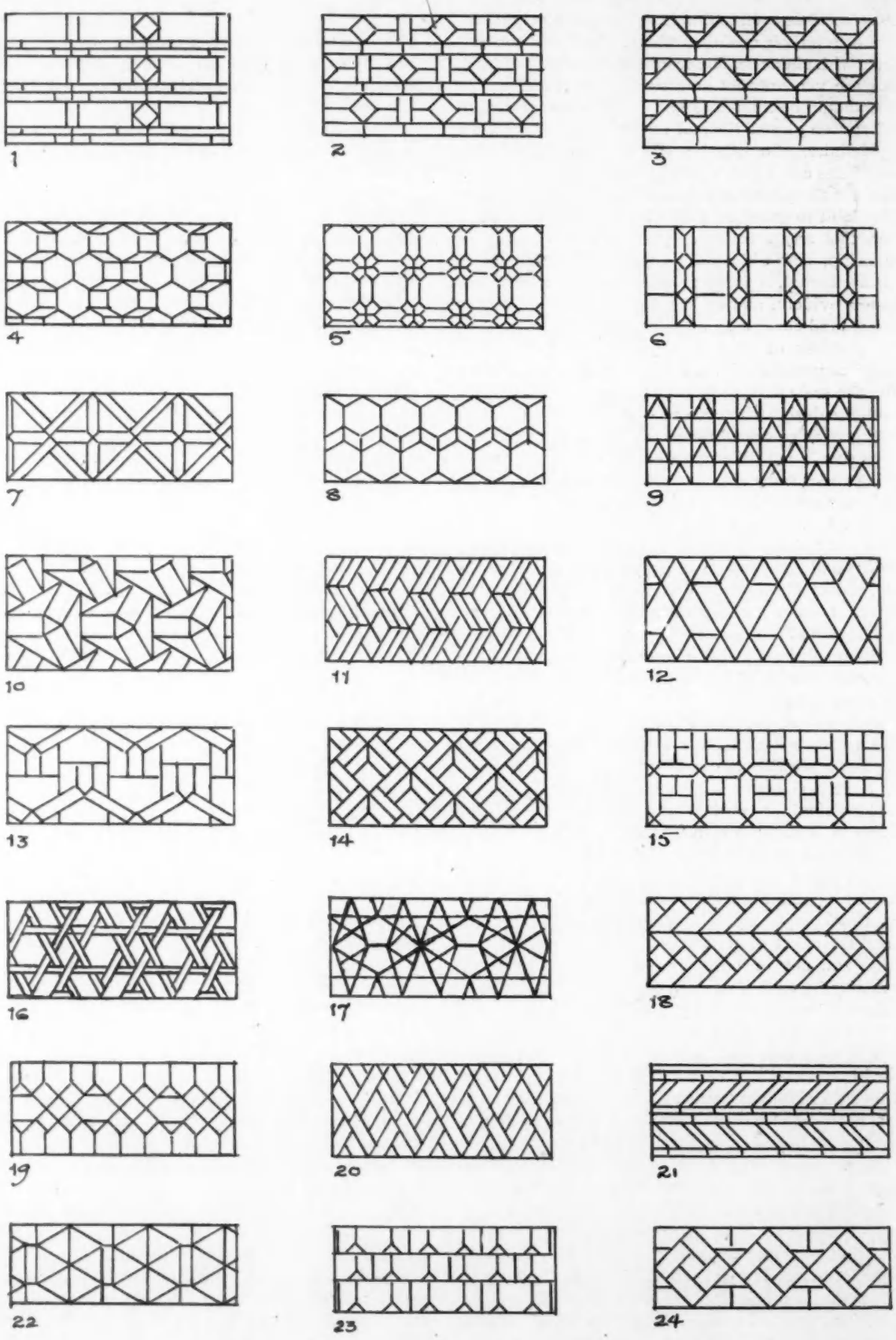


PLATE II. FIELDS.

The Use of Terra Cotta Blocks for Walls of Houses.

EDITOR OF THE BRICKBUILDER:

Dear Sir, — The presentation in THE BRICKBUILDER for March of a method of building plastered house walls of "porous" terra cotta forms, when a sketch detail of the method was shown and editorial comment substituted for the description accompanying the detail, was not such as to do justice to the material. If you will kindly publish the description as originally submitted it will, although as "sketchy" as the detail, surely give those interested a better chance to judge of the merits of the construction.

Given a house wall that is strong enough, looks well enough, and successfully stands off fire and storm, the designer will not feel called upon to grout it like a supporting pier. He wants a slow conductor and poor absorber of heat, and if he could build such walls of some glassy stuff puffed up like pumice and leave them strong enough, he would know that they would be a hundred times better to live with than if of a like thickness of cast iron.

To make walls more cellular, while retaining good bond, to thicken them without adding weight, is to gain strength because we add base and warmth as we divide the material.

The detail and description were prepared to show that a material, meeting at small cost the requirements of better house walls, is at hand in many localities.

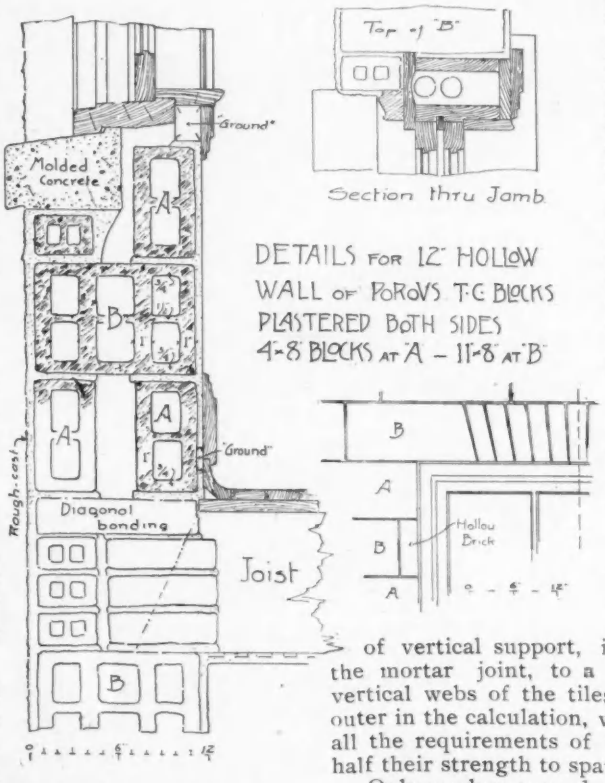
My original description as submitted to you is as follows:

In designing houses one occasionally has the good fortune to be not restricted as to finish, to be left free to choose between wall materials of moderate cost. Being so favored, after settling questions of strength to his satisfaction he will naturally select incombustible materials of good heat insulating qualities, if they may be had within the means at his command.

The rapid increase in prices of structural lumber is adding greatly to the quest for cheap and good walls of masonry. This is in part accountable for the uncountable variety of concrete building blocks flooding the markets here and there.

But very few of these come within hailing distance of the requirements of a good wall, while, if decently made, they cannot in many localities compete in cost with hollow terra cotta forms. Of these both hard and porous goods have their advocates for various purposes.

In our town excellent fireproofing of the latter sort is made, the peculiar qualities of which so appealed to me, as suited for outer walls of houses, that I made selections from the floor and partition forms in use, and have for some time built with wall sections about as shown by sketch. The manufacturer was good enough to modify two of his regular forms so as to make the vertical webs relatively thicker, but no special forms were required, hollow bricks being used about windows, for beam-filling, or running to any desired level not reached by the eight-inch courses.



As applied, the outer plastering and "roughcast" have not failed in what was expected of them, nor do they show any etching by the elements.

When in the late '80s or early '90s tests of hollow tile floor spans showed some of the advantages coming from padding the clay mixture with a considerable percentage of sawdust, etc., to be burnt out in the kilns, it is not likely that the superiority of these "porous" goods as heat-savers was taken into account. But the cellular structure of these goods, due to the process of manufacture, doubtless brings them nearer to wood in heat-saving properties than any other available material in masonry.

In addition to this cellular quality of the materials, it will be seen that the wall is so designed as to divide into four walls, separated by three spaces, except as the bonding webs of alternate tiles extend through. These occupy about one-eighth of the wall space — the studs of the "balloon frame" fill a larger part, while heat need travel less than one-half as far to pass through the wood wall.

Again, wall materials absorb heat roughly in proportion to their weight. This tile wall weighs about one-half as much as a brick wall of like thickness or as some of the better concrete block walls.

The horizontal arrangement of the spaces not only appeals to a builder as giving good bond, but it prevents the peculiar circulation of air currents in the vertical flues formed by setting the tiles on end, a movement often potent in loss of heat by convectivity. While horizontal setting relieves some of the tile material of the function of vertical support, it increases the weakest part, the mortar joint, to a larger area than that of the vertical webs of the tiles. Of these, if we neglect the outer in the calculation, we find the inner three meeting all the requirements of building codes with more than half their strength to spare.

Only workmen used to setting floor fireproofing are employed on these walls, they are so much more certain than brick-layers to fill end joints. Not that this seriously affects strength, but it is desirable to have the spaces well separated in the interest of economy of fuel.

The designer may get several kinds of comfort from these plastered walls. He is less tempted to folly in ornament and "features" than with other materials; he may be as free with measurements and proportions as with walls of common bricks, and he can see his way in cost.

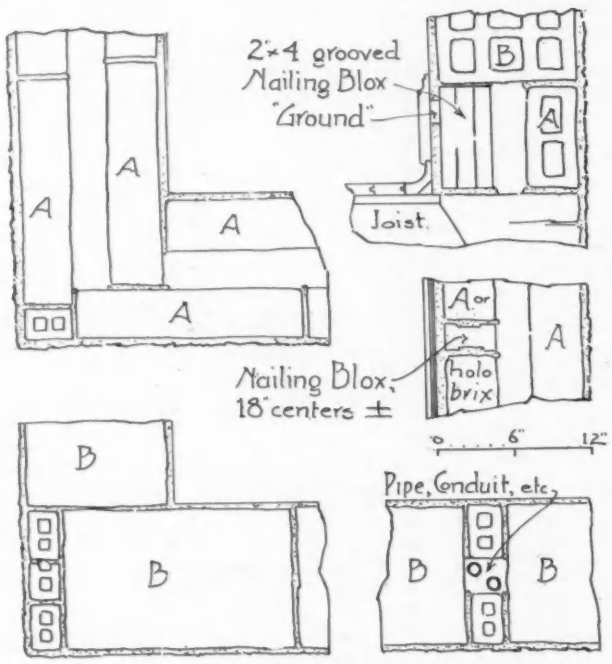
A house now on my boards, with some forty-five hundred square feet of outer wall, will cost about thirty cents per foot for the tiling in the wall with the outer plastering and "roughcast." Equally plain "balloon frame" with "clapboard" siding and painting would cost some twenty cents per square foot ready for inside plastering. Insurance, repainting, etc., remain to be reckoned with, even if the designer have sufficient strength of character to cut out the frivolities to which the wood construction and finish are so apt to lead.

Going more into detail, it will be noted that all special

forms have been avoided, only the large floor block B, 8 in. by 11 in. by 18 in., and the partition block A, 8 in. by 4 in. by 18 in., being used, hollow bricks doing the rest. Openings wider than three feet six inches are usually spanned with the help of iron, which will of course be needed where unusual floor loads come over openings.

When gas or electric lights are needed on these walls it is better to separate the bonding course and place pipe and conduit as sketched than to channel the wall after laying.

Coming to questions of strength, after giving the wall good thickness and exceptionally good bond, we find that a floor with joists as shown will have at least twenty-four square inches to the running foot of the bearing material, the joists having bearing surfaces much to be preferred to that furnished by the vertical construction. With rooms no more than twenty feet in width, two floors with the weight of the inner half of the wall will not load the material of the inner tile more than eighty pounds to the square inch — the roof weight going naturally to the outer side of the wall.



ANGLE PLANS. NAILING BLOCKS, ETC.

Experiences with outer plastering on this material may be of value. Porous terra cotta in these parts is commonly held to be guilty of much "saltpetering" or efflorescing when plastered, — a charge possibly traceable to extensive use of a certain clay deposit much given to efflorescing whether made into porous goods or bricks, — possibly to a belief that the burning of sawdust in the clay leaves more soluble matter in the porous goods than in bricks from the same clays. Without disputing this theory it may be said that a long experience has failed to find plastering on damp walls of any kind that escaped efflorescing when the walls dried; while plastering on porous terra cotta walls, partitions or ceilings that were dry at the time has always been free from the trouble. In such cases the sprinkling of walls by the plasterer to secure his "suction" does not count.

Every one suffers annoyance, and owners at times great distress, from the efflorescing of new walls *in the direction in which they dry out*. When this deposit is on face brick, say, it soon disappears, unless walls are allowed to be continually wet from want of proper copings, cornices, drips, etc.. — that is another story. If, however, exterior cement plastering is to finish the walls, do not look with too much complacency for final uniformity of color if the plastering is done on wet walls.

The porous blocks of a house built some five years since, the walls being of about the sections shown, were much wet by rains before and during construction. The season being far spent, outer plastering had to be done shortly, so that much of the water of construction remained in the wall and, as a matter of course, evaporated through the cement coating, carrying with it the inevitable substances in solution to lodge at the surface. The cement of the plaster was a marl variety of medium dark color with a knack of retaining, when dry, more or less of the olive tint so common to mortars of Portland cement. Parts of the exterior were plastered on metal lathing with wood support, and here the work dried evenly with the olive gray color, seemingly as permanent as the color of a quarry stone; but where plastered on the damp terra cotta blocks the peculiar color of the cement was changed unevenly to lighter grays, which, in turn, are permanent, not being removed by the atmosphere as is the common efflorescence of masonry walls.

It so happened that on the south wall noticeably finer gravel had been used for parts of the "roughcast," bringing manifest regret to the owner, learning which, the contractor, the wall being by this time thoroughly dry, dashed on another coat of the proper texture. This last dried in all respects like the work on the metal laths, nor is any fault to be found with the adhesion or weathering of this second coat of "roughcast."

In fact, both the work on the damp walls and that last mentioned appear to-day to be actually sound, showing no trace of yielding to the elements. But these walls where not protected by broad cornices have, in all cases, good copings, belt courses and sills, all made to drip free from the wall surfaces.

Certain outlying terrace walls, however, were built with less care of "wire-cut" bricks, plastered sides and top, the intended copings being omitted. These have come to grief. Whether terra cotta blocks with no better treatment would have stood better is left to conjecture.

Some of the liquid coatings now on the market of the thick asphaltic sort, to be applied on the outside of the blocks, would be added insurance against wind and wet—if one could be certain that such a film between block and plaster would not prevent the best adhesion of the two. As it is, a good coat of neat cement and fine gravel, applied "slap-dash," appears to make a much better outer skin than can be made with the trowel.

In accounting for the low cost of these walls, it is to be remembered that but half as much clay is burned and hauled to the building as for a brick wall of like volume; that in laying one block B and two blocks A, the mason accomplishes as much as with thirty-five to forty bricks, using perhaps one-fourth the mortar, and that no special forms have to be prepared or laid. Appropriate forms of denser clay goods may in some places be found cheaper, but hardly as warm.

FREDERIC G. CORSER.

Minneapolis, Minn.

Editorial Comment and Selected Miscellany

PANEL, TREE DESIGN, REPEATING. IN COLORED MAT GLAZE.
Made by The Rookwood Pottery Co.

THE ANNUAL REPORT OF THE SCHOOL-HOUSE DEPARTMENT, CITY OF BOSTON.

THE Fifth Annual Report of the Board of School-house Commissioners for the City of Boston furnishes some pretty serious food for reflection. The commissioners call attention to the severe limitations placed upon the powers of the Board by the lack of permanent provision for new buildings. While nearly all of our large cities are providing every year, regularly and liberally, for new school buildings necessary to meet the growing demands of the population and to replace the buildings which are out of date, in Boston the funds for new buildings are available only as special loans are authorized by the legislature. There never has been a time when the Board could look ahead twelve months and know what funds would be at its disposal, and at present there is no provision for the future. The work of the Board is actually seriously hampered, as it is impossible for them to plan their work in advance. This is a condition greatly to be regretted, and the contrasts between the excellent accommodations offered by the newer buildings and the insufficiency of school accommodations in the more crowded districts is very disappointing to those who appreciate the necessity for extending the public school system.

DETAIL BY ATLANTIC TERRA COTTA CO.

The report gives a number of very admirable general deductions as to the various types of plan which have been adopted for the different schools, comparing these types with what have been followed in New York, Chicago and St. Louis. The school committee, which has the direction of the teaching work in the schools, as distinct from the school commission, has obliterated a somewhat imaginary line between primary and grammar children, and this action will affect the work of the Board, especially as it tends in the direction of putting a larger number of children into the elementary schools of low grade and reducing the number of grades that are in the central district schools where the children have the additional advantages of equipment for manual training and cooking, and of an assembly hall. It is expected that the growth in the future will be along the lines of a large number of medium size schools of from ten to twenty rooms rather than in the direction of from thirty rooms to over. This is a sharp contrast to the attempts which have been made in New York to relieve congestion and reduce ground expenses by carrying schoolhouses up several stories. Most of the Boston schoolhouses are three stories and under in height.

DETAIL BY WIDMANN, WALSH & BOISSELER, ARCHITECTS.
Winkle Terra Cotta Co., Makers.

All buildings erected by the Board are now required to be of fireproof construction throughout. The cost is limited by allowing from 30,000 to 35,000 cubic feet per classroom for the lower elementary schools, and allowing a sliding scale of cubic feet per classroom for the higher elementary schools, the cost per cubic foot averaging about twenty-two cents. For high schools the allowance runs from 66,000 to 82,000 cubic feet per class of forty, and the cost averages about twenty-four cents per cubic foot. The Board notes that soft foundations requiring tiling, waterproofing, reinforced concrete, or any other unusual expense below grade will add in the neighborhood of two cents per cubic foot to the building.

The appendix of the report contains a very admirable description of the typical school buildings in New York, Chicago and St. Louis which is fully illustrated. There is also a very interesting report on technical and industrial education in England, and the whole report is fully illustrated with plans and photographs of work executed during the past year.

THE FRESCOES OF THE CONGRESSIONAL LIBRARY.

THE mural decorations of the Congressional Library, Washington, constitute one of the most interesting examples of interior work which this country possesses, and it is therefore a source of great disappointment to find that some of these beautiful paintings seem to be slowly disappearing. Anyone who has visited the Library of late years must have noticed the ceiling work in the north corridor of the ground floor. These decorations were painted by Edward Simmons and are among the most interesting in the building. Some of the small ceiling pieces have faded out so they can hardly be determined, and the tones of all the paintings are more or less

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Frank P. Gravely Co., Architects.
Built of White Terra Cotta. Made by Northwestern Terra Cotta Co.

discolored and unpleasant. The corresponding paintings in the south corridor also have suffered quite perceptibly as well as the ceiling paintings in the rotunda of the print room in the second floor. There is no means of knowing just what should cause this deterioration. The paintings are all, we believe, upon canvas, mounted with white lead upon the plaster work, and it would seem as if anything in the nature of the plastering itself would hardly be able to attack, through the white lead mounting, the canvas and the paint itself. It will be an artistic calamity for the country if these magnificent paintings are to be ruined. We are very apt to think of oil paintings as being permanent to the last degree, but as a matter of fact it is to be remembered that the process of mixing colors with oil to form a pigment dates only from the time of the Renaissance, and it is by no means certain how long oil paintings will last on the walls. On the whole, it is rather doubtful if two generations hence many of our mural decorations will be in place, if we may judge by what is happening in Washington. Thus far there has been no form of mural decorations devised which possesses anything like the permanence of glass mosaic or encaustic tile. The mosaics of St. Mark's and of St. Sophia have stood now for upwards of fourteen hundred years with apparently not a particle of loss in intensity or in tone. The glazed terra cottas from Babylon and the Euphrates Valley have lasted even longer, some of them dating back nearly three thousand years.

DETAIL BY SOUTH AMBOY TERRA COTTA CO.

"THE MARCH OF THE SKYSCRAPER."

SO crowded with tall buildings has the lower end of Manhattan Island become that the uptown district is beginning to be dotted with great steel and stone office structures. This tendency to turn the Murray Hill and Tenderloin sections into a district of offices is called, by some real estate men, "the march of the skyscrapers."

Until a very short time ago a business concern that needed a suite of general offices rarely thought of going north of City Hall Park in search of the proper place. It is different now. The Metropolitan Life Insurance Company has one of the largest office buildings in the world in Twenty-Third Street; at Fifth Avenue and Twenty-Sixth Street the Brunswick Building has been opened to tenants, and there are many other office structures recently finished, or about to be.

Latest, and perhaps the most distinctive, is the Monolith, in Twenty-Fourth Street. As its name indicates, it is built of concrete. It is only about thirty yards from the corner where, it is said, more people pass in a day than anywhere else in the world,—the corner where Broadway and Sixth Avenue and Thirty-Fourth Street come together. The Waldorf-Astoria Hotel is in the same block, and the principal shops and theaters are almost within a stone's throw.

The way in which the floors and partitions of this concrete building are constructed of hollow terra cotta blocks insures absolute safety from fire. The Monolith is an illustration of the theory upon which nearly all engineers are now agreed — that concrete is a structural material which, like steel, has to have supplementary protection in the way of fireproofing. This fact was established by the San Francisco fire.

AN UNBURNABLE CITY.

"SOME day we shall see an unburnable city," said a prominent fire insurance underwriter of New York, commenting upon the low rate upon lofty office buildings.

This authority mentioned a building in the Wall Street district which carries the lowest rate possible under the schedules of the New York Fire Insurance Exchange. It is the Caledonian, in Pine Street, and its net rate is only five cents per hundred dollars. The building has a cast iron frame, the members of which are protected by porous terra cotta and brick. It is twelve stories high.

A ten-story building in Broad Street, not far from the New York Stock Exchange, has to pay twice as much, or a net rate of ten cents per hundred dollars, though it is two stories lower than the Caledonian. Its metal frame is not

DETAIL BY C. B. J. SNYDER, ARCHITECT.
New York Architectural Terra Cotta Co., Makers.

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protected by either terra cotta or brick, and that causes the difference in the rate. An official of the Fire Insurance Exchange says:

"I should estimate that fireproof protection, that is terra cotta or brick, means a difference of fully twenty-five per cent in the net rate of insurance on steel and iron buildings. Five cents is the lowest rate allowed in New York. More and more modern buildings put up nowadays approach that minimum. Unquestionably this city is becoming safer from fire every day through the erection of buildings of protected iron and steel."

Another example of a very low rate due to modern fireproofing methods is the Trinity Building, No. 111 Broadway. Its great height, twenty-one stories, which would ordinarily mean very costly insurance, is counterbalanced by the character of construction, and the rate is only twelve cents per hundred dollars. Architects and engineers are considering as never before the isolation of each floor from the others, the limiting of areas, the utmost possible elimination of well holes, and the enclosing of stairways.

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IN GENERAL.

Lyman A. Ford, Lewis Stewart and Leslie Allen Oliver announce that they have formed a co-partnership for the practice of architecture under the firm name of Ford, Stewart & Oliver, with offices at 37 West 31st Street, New York.

DETAIL BY AMERICAN TERRA COTTA CO.
Louis Sullivan, Architect.

G. A. Wright, George A. Rushforth and B. J. S. Cahill, architects, San Francisco, have removed their offices to 571 California Street.

Kable & Kable, architects and engineers, have opened an office in the Buchanan Building, Portland, Oregon. Manufacturers' catalogues and samples desired.

George Albrée Freeman and Francis George Hasselman, architects, announce the removal of their offices from 566 Fifth Avenue to the new Castles Building, 39-41 West 38th Street, New York.

The students of the School of Architecture of Columbia University have presented to the University a portrait of Prof. A. D. F. Hamlin, the work of J. Redding Kelly.

The Architectural Bowling League, composed of draughtsmen from nine of the leading architectural firms of New York, held their first annual dinner on June 4, at the Hotel St. Denis. The first prize, won in the contests of the past season, was awarded to the team representing the office of Carrère & Hastings.

At this dinner a suggestion was made that the

DETAIL BY ATLANTIC TERRA COTTA CO.

draughtsmen of New York organize a club for social and professional purposes. The suggestion was received with great favor. A Draughtsman's Club in New York is something which has long been needed, and it is sure to be a great success in all respects from the very beginning.

The terra cotta used in the Nottingham Apartments, Snelling & Potter, architects, illustrated in this issue, was furnished by the Atlantic Terra Cotta Company.

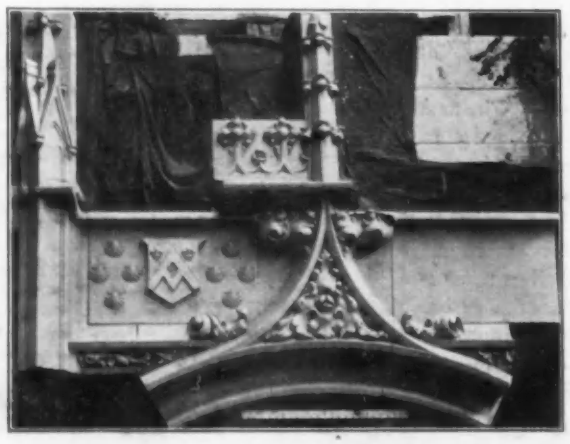
The Hartford Faience Company, New York office 1123 Broadway, have issued a very attractive little pamphlet, which deals with Embellishments for Concrete Buildings. The embellishments suggested are faience tiles, and among them replicas of the work by the Della Robbias.

DETAIL BY GEORGE F. PELHAM, ARCHITECT.
New Jersey Terra Cotta Co., Makers.

Carter, Black & Ayers, of New York, will supply front brick for the following new buildings: forty-story Singer Building, New York, Ernest Flagg architect; new building for the Pathological Department and Male Dormitory, new Bellevue Hospital, New York, McKim, Mead & White, architects; Training School for Women Nurses at new Bellevue Hospital, Parish & Schroeder, architects. "Harvard" brick will be used in the exteriors of these buildings, while very many light bricks will be used in the interiors.

Textor & Aftel, architects, have opened an office in the Spitzer Building, Toledo, Ohio, and will be glad to receive manufacturers' catalogues.

The architectural terra cotta for the following new buildings will be supplied by the South Amboy Terra Cotta Company: The MacMellen Building, 64 Fifth Avenue, New York, C. H. Cladwell, architect; Bank Building, Elizabeth, N. J., Oakley & Son, architects; Parish House, New York City, Hoppin, Koen & Huntington, architects; a residence at Lenox, Mass., by the same architects; an office building for the Fruit Auction Company of New York City, Frank Cornell, architect.



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HEADQUARTERS OF THE ARCHITECTURAL LEAGUE OF AMERICA.

AT the Executive Board meeting of the Architectural League of America, held in Toronto on June 19, the permanent headquarters of the League were established at 729 Fifteenth Street, N. W., Washington, D. C., and H. S. McAllister, the ex-Secretary of the Washington Architectural Club and now Vice-President of the same, was appointed permanent Secretary of the League. The Executive wishes to announce that all communications with the League may henceforth be directed to Mr. McAllister at the above address.

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A Limited Number of the illustrated "**Review**" of the School of Architecture, for 1907, can be supplied to those who will enclose 24 cents in stamps with their applications. Address for the "Review," Professor Warren P. Laird, College Hall, as above.

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